

# Access® Systems

## Software Driven Multi-MIG® Process Platform

Issued February 2007 • Index No. AU/8.0

Digital Semi-Automatic and  
Robotic Welding Systems



### Quick Specs

#### Manufacturing Applications

Construction Equipment  
Automotive Components  
Recreational Vehicles  
Farm Machinery  
Office Furniture  
Mining Machinery

#### Processes

##### Multi-MIG®

Accu-Pulse® MIG (GMAW-P)  
- Accu-Curve™ MIG (GMAW-P)  
- Accu-Speed™ MIG (GMAW-P)  
Pulsed MIG (GMAW-P)  
MIG (GMAW)  
Metal Core  
Carbon Arc Gouging (CAC-A) can also be activated (Access only)

**FREE TRIAL!** See page 2 for details  
RMD™ (GMAW-SCT) *Optional*

**Rated Output** 300: 300 A at 32 VDC, 60% Duty Cycle  
(225 A at 29 VDC, 100% Duty Cycle)  
450: 450 A at 44 VDC, 100% Duty Cycle  
675: 675 A at 44 VDC, 100% Duty Cycle

**Voltage Range** 10–44 V

**Auxiliary Power** 120 VAC, 10 A Duplex

**Ship Weight** 300: 116 lb (52.6 kg)  
450: 163 lb (72.9 kg)  
675: 208 lb (94.3 kg)

## The Power of Blue.®

## Flexible, Expandable and Upgradeable

Multi-MIG capable welding systems are precise, digitally controlled and software-driven. For additional information visit [MillerWelds.com/AMS](http://MillerWelds.com/AMS).

### Access Power Systems for Semi-Automatic Applications



Shown with Access feeders

Access four-drive-roll wire drive feeder is combined with operator interface leaving no controls back at the power source. Provides positive feeding for the appropriate preprogrammed wire diameters from 50–1400 IPM and operates from 40 VDC supplied by Access power source.



Go to the online Access System Configurator at [MillerWelds.com/AMS](http://MillerWelds.com/AMS)

### Auto-Access Power Systems for Robotic/Automation Applications



Shown with AA-40GB with OCP wire drive motor assemblies

Access digital control technology combined with inverter welding power source is designed to reduce complexity of a semi-automatic or robotic pulsed MIG system, simplify installation and provide superior welding performance.

“Access” the ability to accommodate welding data file exchange through downloadable upgrades and new hybrid welding processes using e-mail, or the Web and a Palm™ handheld (PDA).



Power source is warranted for 3 years, parts and labor.

AA-40GB motor connections.

**AA-40GB Wire Drive Motor Assembly with OCP (Over Current Protection)** to protect against current surges. New design utilizes an improved sheet metal enclosure including printed circuit board. It features a threaded gas connection and a direct-panel-mounted, quarter-turn motor control cable connection that eliminates motion stress on the motor's power and tachometer feedback wires.

DESIGNED **USA**  
AND BUILT IN



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[www.MillerWelds.com](http://www.MillerWelds.com)



## Features and Benefits (Common to all Axxess Systems.)

### HARDWARE (Standard)



Miller's patented technology allows for **any** input voltage hook-up (190–630 V) with no manual linking. Assures rock-solid, consistent output on fluctuating primary lines.

#### Wind Tunnel Technology™

Circulates air over components that require cooling, not over electronic circuitry, which reduces contaminants and improves reliability in harsh welding environments.

#### 1/4-turn steel connectors

Allow for faster installation of system and eliminates thread stripping.

#### Fan-On-Demand™

Cooling system operates only when needed. Reduces amount of airborne contaminants pulled through the machine.

#### 115 VAC duplex receptacle

Provides 10 amp circuit-breaker-protected auxiliary power regardless of primary power.

#### Dual removable lifting eyes

For moving with overhead lifts. Removability allows for flat-top feeder or storage on top.

#### Forklift slots

Slots cut into the frame for forklift transportation.

#### Matching footprints

All models use common stacked power modules allowing small footprint.

#### Flexible feeding options

Several different wire feeding and operator interface options are available and configurable to desired application.

#### 9-pin Palm™ handheld (PDA) and 9-pin RS-232 serial communication port

Separate ports provide Axxess with data transfer and optional program downloads.

### SOFTWARE (Standard)

**FREE 8 Hour Trial of RMD™ with Every New Axxess or Auto-Axxess Power Supply**

#### Multi-MIG® capability

Includes common carbon steel, aluminum and stainless welding programs, including new patented **Accu-Pulse®**, standard or adaptive pulse, conventional MIG and metal core programs using the most popular wire diameters and gas combinations. **Now with Accu-Curve™ and Accu-Speed™.**

#### Accu-Pulse®

MIG process that delivers precise control of the arc even over tack welds and in tight corners. Provides optimum molten puddle control for out-of-position welding.

#### SureStart™

Provides consistent arc starts by electronically assuring a ball is not left on the wire when welding is stopped. This provides a predictable condition for the next arc start and combines this with precisely tuned arc starting routines.

#### Arc Control

Control offers a simple way to tailor factory pulse weld programs by adjusting the arc plasma cone to accommodate a variety of welding applications without the need for any reprogramming or changing any hardware.

#### Arc Adjust

Allows a simple method that controls arc length for pulse processes and wetting action for RMD.

#### Remote/trigger program select

Allows changing weld programs to take advantage of up to 8 programs of Multi-MIG welding process capabilities.

#### Optional Axxess-able software

RMD™ (Regulated Metal Deposition), Palm™ Axxess file management system, WaveWriter™ Palm pulse wave shaping.

## Multi-MIG® Process Capability — Through Software-Based Programs

“Axxess®” the ideal welding process for any weld joint at hand. Whether you need high travel speed combined with high deposition rates or require gaps to be filled, any combination of the available welding processes can be “Axxess”-ed either at the start of a welding sequence or

anywhere in the weld while actually welding by using trigger or remote program select.

For a given wire-feed speed, the chart below shows from left (hottest) to right (coolest) all the possible arc mode transfer ranges of

“Axxess”-able MIG processes. This shows compatible spray gas combinations such as 90 Ar/10 CO<sub>2</sub> (90% Argon and 10% Carbon Dioxide) on steel using the same wire-feed speed and also gives an indication of puddle control characteristics based on arc type selected.

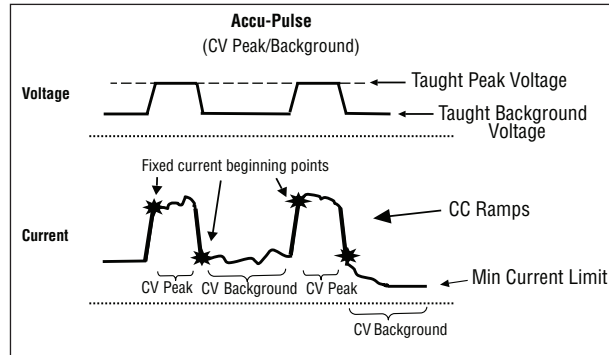
Process	Standard Spray	Pulsed Spray	Accu-Pulse® Accu-Speed™ Accu-Curve™	Standard Short Circuit	RMD™ Regulated Metal Deposition (Optional)
Weld Puddle Control	Flat/Horizontal	All Position Performance			Thin Materials/Gap Filling

Note: To achieve optimum performance, 4/0 welding power secondary cable is recommended and the supplied work-sense lead must be connected as close to arc as possible.

## Featured Welding Process

### Accu-Pulse®

**STANDARD** pre-programmed welding processes include patented Accu-Pulse, 2 **new** Accu-Pulse programs called Accu-Curve™ and Accu-Speed™, conventional MIG and pulsed MIG optimized for the most common steel, stainless steel, aluminum and metal-cored wires, using the most common wire diameters and gas combinations. Programs for new processes and different materials are planned and currently in development. In most cases, slightly different ratios of gas mixtures will perform well using a similar program and adjusting arc length or the appropriate arc control for the selected process. Contact Miller for more information on less common materials and gas combinations.



#### Benefits of Accu-Pulse®

(Compared to conventional pulse)

- Shorter arc lengths possible
- Better puddle control
- More tolerant of contact tip to work variation
- Less audible noise
- No arc wandering in tight corners
- Narrow arc plasma column
- Allows weld to fill in at toes increasing travel speed and deposition
- More tolerant of poor fit up and gaps (compared to standard pulse)
- Ideal for robot seam tracking applications

### **New!** Accu-Curve™

**STANDARD** on all Axxess models — Accu-Curve is a variation of the Accu-Pulse process. The transitions from peaks to background voltage are “curved”. The curved transitions provide a “softer” feel without sacrificing the tight arc lengths that allow for better puddle control that have become the hallmark of the Accu-Pulse process.



#### Benefits of **NEW!** Accu-Curve™

- “Softer” feel than Accu-Pulse
- Maintains tight arc lengths
- Maintains better puddle control

### **New!** Accu-Speed™

**STANDARD** on all Axxess models — Accu-Speed is a variation of the Accu-Pulse process and was developed for the type of arcs needed in automated welding applications. Accu-Speed has a tighter driving arc that can be directed into the joint, yet still remains stable at the higher travel speeds used in automated welding. In general, Accu-Speed has lower average voltage and amperage when compared to Accu-Pulse.

**Note: Accu-Curve and Accu-Speed can be added to existing Axxess or Auto-Axxess systems for FREE by updating code online at [MillerWelds.com/AMS/axcess](http://MillerWelds.com/AMS/axcess). Requires Palm handheld to transfer code from PC to Axxess.**

#### Benefits of **NEW!** Accu-Speed™

- Up to 20% greater travel speed than Accu-Pulse
- Lower average voltage/amperage than Accu-Pulse
- Tight, driving arc
- Remains stable at higher travel speeds

## Software-Based Welding Process Option

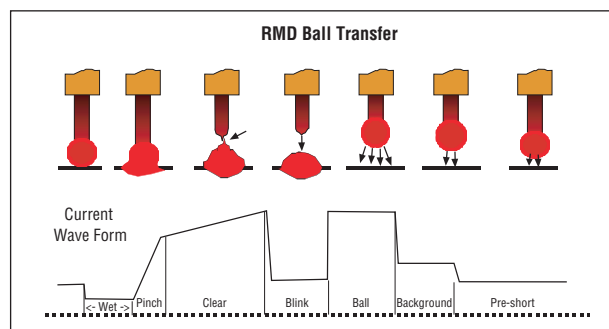
### RMD™ (Regulated Metal Deposition)

**Field #195 252**  
(serial # must be provided)  
Field installation requires Palm handheld.

*Note: Factory-installed software can be ordered as a combo-number option with power supply. See power source stock number listings on page 12.*

The unique patented design of RMD (Regulated Metal Deposition) is a precisely controlled short-circuit transfer. It is a method of detecting when the short is going to clear and then rapidly reacting to this data changing the current levels. Features Proactive Dynamic Puddle Control.

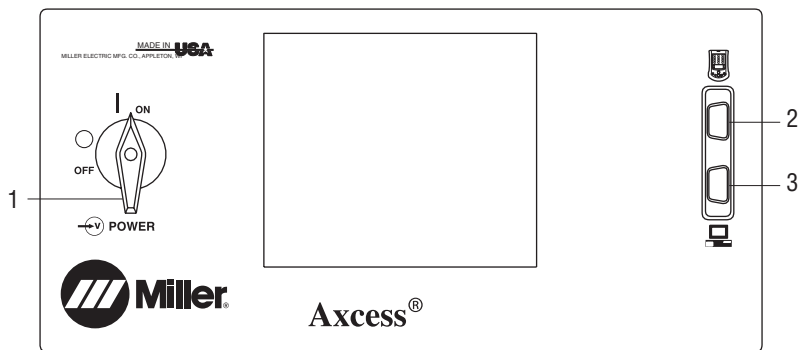
*Note: Palm handheld required for field option installation — Field kit includes connection for Palm to connect to Axxess.*



#### Benefits of RMD

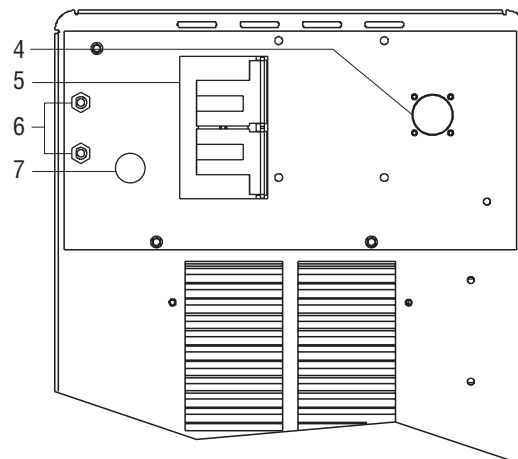
- Weld suited to thin materials
- Can replace TIG process in some applications
- Gap filling
- Spatter reduction
- Provides less heat into work piece
- Excellent performance on stainless steel
- Can be combined with other Axxess®-related programs
- Minimize distortion
- Use larger diameter wire on thin materials

Front Panel



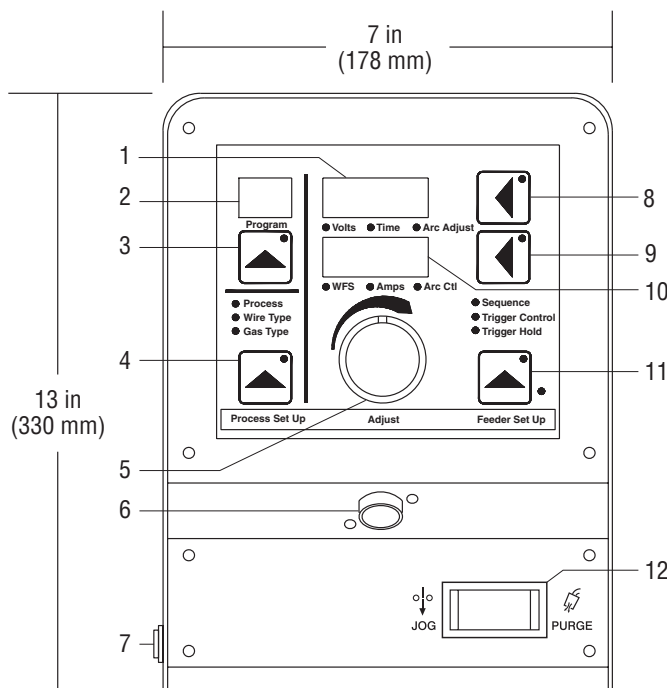
1. Power Switch
2. Handheld RS-232 Port
3. PC-Communication RS-232 Port (Future use)

Rear Panel



4. Network Feeder Connector
5. 115 VAC, 10 A Duplex Receptacle
6. Circuit Breakers
7. DeviceNet Connector (Optional)

Single Access Feeder and Remote Operator Interface (ROI)



1. Voltage/Arc Adjust Display Meter
2. Program Display
3. Program # Select
4. Process Setup Button
5. Control Knob
6. Trigger Receptacle
7. On/Off Button
8. Voltage Setup Button
9. Wire Speed Setup Button
10. Wire Speed/Amperage Display Meter
11. Feeder Setup Button
12. Jog/Purge Switch

## Capabilities

**Dual Schedule**—Toggle between two settings using a single wire.

**4T**—When trigger is released, output will operate at different ranges.

**Trigger Program Select (TPS)**—Provides the ability to “Access” any of the Multi-MIG® processes or any of the eight active programs.

**Trigger Dual Schedule (TDS)**—When activated allow selection between predetermined program pairs (e.g. 1,2 – 3,4 – 5,6 – 7,8).

**Trigger Hold (TH)**—When activated, allows gun trigger release and continuous welding until trigger is pulled again.

**Carbon Arc Gouging (CAC-A)**—Can be activated.

### Sequence

- Preflow: 0.1–5 sec
- Start Power: 0.1–5 sec
- Crater: 0.1–5 sec
- Postflow: 0.1–5 sec

**Arc Adjust**—Arc length (Trim)

**Arc Control**—Arc force or focus (SharpArc®)

**Process Selection**—Accu-Pulse®, Pulsed MIG, MIG, Metal Core, RMD™ (Optional)



## Auto-Axcess® Control Panels



- |                                      |  |                                       |
|--------------------------------------|--|---------------------------------------|
| 1. Voltage/Arc Adjust Display Meter  | 8. Purge Pushbutton                              | 14. Arc Control                       |
| 2. Program Display                   | 9. Handheld RS-232 Port                          | 15. Peripheral Connector              |
| 3. Program # Select                  | 10. Jog Forward Pushbutton                       | 16. Robot Connection                  |
| 4. Power Switch                      | 11. PC-Communication RS-232 Port<br>(Future use) | 17. Motor Connector                   |
| 5. Process Setup Button              | 12. Jog Retract Pushbutton                       | 18. DeviceNet Connector<br>(Optional) |
| 6. Control Knob                      | 13. Wire Feed/Amperage Select                    | 19. 115 VAC, 10 A Duplex Receptacle   |
| 7. Wire Speed/Amperage Display Meter |  |                                       |

## Capabilities

**Auto-CAL (Automatic Calibration)** — Patented software-based feature exclusive to Auto-Access. Allows simple, quick and accurate wire feed speed and voltage commands from most robots using analog signals. Auto-Access calibrates itself to deliver exact responses to commands from robots. This allows Auto-Access to be used interchangeably with many brands of robots, and allows quick replacement of competitive power supplies without the need to change wire feed speeds.

**Remote Program Select**—Allows changing weld programs from the robot controller to take advantage of up to eight programs or Multi-MIG® welding process capabilities.

**Integrated 80 V Touch Sensor**—To be used with external circuitry or peripheral equipment when touch sensing.

## Front Panel Features

- Weld Process Selection
- Wire Size and Type
- Gas Type
- Wire Jog Forward Button
- Wire Jog Reverse Button
- Purge Button
- Digital Display Meters:
  - Voltage / Arc Adjust (Trim)
  - Wire Feed Speed / Amperage
- Program Number
- Arc Control  
(SharpArc® and Inductance)

## Analog Outputs

- Voltage
- Current

## Analog Inputs

- Voltage/Arc Adjust (Trim)
- Wire Feed Speed

## Digital Outputs

- Arc On
- Wire Stick
- Welder Ready

### Digital Inputs

- Start
- Jog Forward
- Jog Reverse
- Purge
- Program Select
- E-Stop

## Auto Setup

- Robot Specific

### Sequence

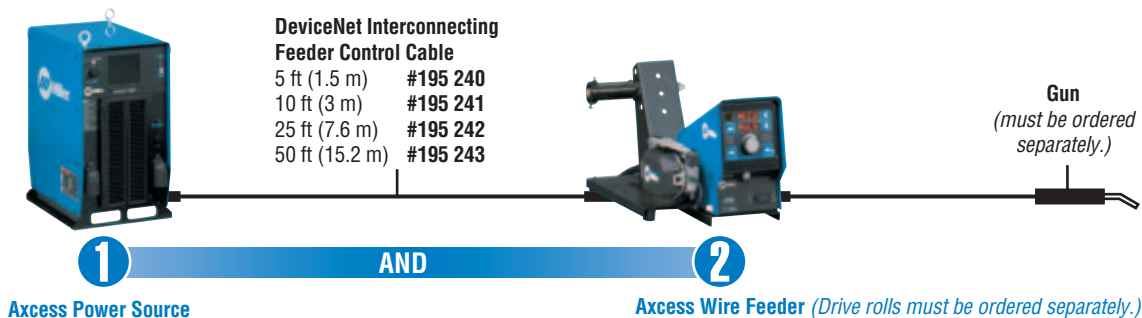
- Prewflow: 0–9.9 sec
- Start Power: 0–2.5 sec
- Voltage: 10–44
- IPM: 50–1400
- Crater: 0–2.5 sec
- Retract
- Postflow: 0–9.9 sec

## Typical Axxess® Installations (Semi-Automatic Pulsed MIG or Conventional MIG)

The Axxess platform is designed to provide multiple wire feeding configurations suited to the unique needs of modern manufacturing applications and industries. It utilizes many common components to minimize both part and maintenance complexity. All motors operate on 40 VDC provided by the Axxess power supply and have a wire feed speed range of 50–1400 inches per minute. A common operator interface is used on all (see page 4).

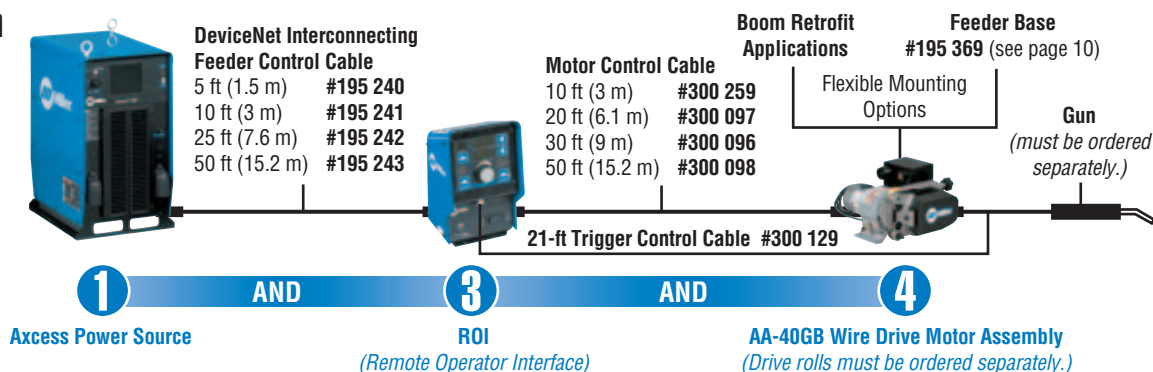
### Standard Installation

A typical bench/sled feeder installation. For use when the feeder is placed on the power supply, a bench or an optional cart.



### ROI Option Installation

Allows feeder motor drive to be placed away from power supply and operator interface. Ideal for fixed automation applications and updating or replacing equipment on booms or other applications where separate location of power source, ROI, and wire drive motor is desirable.



## 1 Axxess Semi-Automatic Power Source



Model	Rated Output	Voltage Range	Amperage Range	Max. Open-Circuit Voltage	Amps Input at Rated Output, 50/60 Hz, 3-Phase							Dimensions	Net Weight
Axxess 300	300 A at 32 VDC, 60% Duty Cycle (225 A at 29 VDC, 100% Duty Cycle)	10–44 V	5–400 A	80 VDC	33	29.7	16.9	14.6	11.6	11.7	11.2	300 H: 23 in (584 mm) 450 H: 31 in (787 mm) 675 H: 39 in (991 mm) W: 17 in (432 mm) D: 22-1/2 in (572 mm)	116 lb (52.6 kg)
Axxess 450	450 A at 44 VDC, 100% Duty Cycle	10–44 V	5–600 A	80 VDC	—	60	33.7	28.8	22.8	22.2	23.1		163 lb (73.9 kg)
Axxess 675*	675 A at 44 VDC, 100% Duty Cycle	10–44 V	5–900 A	80 VDC	—	89.7	—	43.7	34.8	35.7	34.4		208 lb (94.3 kg)

Certified to both the Canadian and U.S. Standards for welding equipment. \*Axxess 675 is not CSA approved.

## 2 Wire Feeder Options



Wire feeders do NOT include drive rolls or required DeviceNet Interconnecting Feeder Control Cable. These must be ordered separately.

**Axxess Single Feeder #195 182**

**Axxess Dual Feeder #195 325**

Feeder is designed specifically for Axxess. Provides single-range control of 50–1400 inches per minute. Dual-wire model provides the same functionality as single-wire version, but is ideal when two different wire types need to be available at the same time. Digitally communicates with Axxess power source via DeviceNet Interconnecting Feeder Control Cable.

Model	Gas Valve	Type of Input Power	Connection to Power Source	Wire Feed Speed Range*	Wire Diameter Range	Single Feeder Dimensions	Dual Feeder Dimensions	Ship Weight
Axxess Bench/Sled Feeder	Included	40 VDC (from Axxess)	DeviceNet Interconnecting Feeder Control Cable — 5, 10, 25, or 50 ft (Order separately)	50–1400 IPM (1.3–35.56 MPM)	.035–3/32 in (0.9–1.6 mm)	H: 14-1/2 in (368 mm) W: 12-1/2 in (318 mm) D: 27 in (686 mm)	H: 15 in (381 mm) W: 19 in (483 mm) D: 34 in (863 mm)	Single Feeder 49 lb (22 kg) Dual Feeder 124 lb (56 kg)

\*This is the wire feed speed range while using MIG. With pulsed MIG, the wire feed speed range may be more limited.

### 3 ROI (Remote Operator Interface) Options

ROI does NOT include AA-40GB Wire Drive Motor Assembly, Motor Control Cable or DeviceNet Interconnecting Feeder Control Cable. These must be ordered separately.



**Single ROI #195 238**  
**Dual ROI #195 433**

The ROI allows the Axxess power supply, wire drive motor assembly and operator interface (ROI) to be located in three separate places. This is desirable for mounting to custom jibs, booms or other extended-reach applications. Since an ROI system can incorporate separate components providing the most flexibility for custom applications, it's an ideal way to obtain the many benefits of the Axxess while retaining an existing boom or other structural asset. The dual-wire ROI provides the same functionality as the single, but controls two separate wire drive motor assemblies. Four programs are available per side.

*Note: For non-Miller boom and jib mounting, see ROI installation diagram on page 6 and select desired cable lengths.*



**Auto ROI #195 239\***

*(Contact Applications for assistance at 920-954-3814 prior to any new installation.)*

The Auto ROI is to be used with an Axxess power supply with the E-Stop option. Provides functionality of the ROI, but replaces sequence and trigger functions with two programmable inputs and outputs. To be used in simple dedicated/fixed/hard automation applications. Features arc established output. Includes 30 ft cable for wiring to other external devices.

*\*Requires Axxess power supply with E-Stop function option. E-Stop is not intended for continuous interruption applications. Axxess systems require approximately 30 seconds to reboot or come back online after recovering from an E-Stop condition.*

*Note: For non-Miller boom and jib mounting, see ROI installation diagram on page 6 and select desired cable lengths.*



**Access® ROI Swingarc™ Boom-Mounted Wire Feeders**

**#195 484** 12 ft (3.7 m) Single-Wire  
**#195 434** 12 ft (3.7 m) Dual-Wire  
**#195 346** 16 ft (4.9 m) Single-Wire  
**#195 435** 16 ft (4.9 m) Dual-Wire  
 Swingarc boom-mounted semiautomatic wire feeders bring an extra dimension of flexibility and efficiency to high-production MIG welding stations. You get an effective solution that maximizes output, especially when dealing with large weldments and hard-to-reach places.

**Dual Swingarc Retrofit Kit #300 032**

Kit is required when replacing motors on older Miller Dual 60 Series Swingarc booms. Provides all of the Axxess benefits, but maintains existing dual-boom hardware.

**21-ft Trigger Control Cable #300 129**

Required when retrofitting non-Miller booms with an ROI option.

Model	Type of Input Power	Connection to Motor	Connection to Power Source	Single ROI Dimensions	Dual ROI Dimensions	Ship Weight
ROI	Supplied from power source	Motor Control Cable—20, 30, or 50 ft (Order separately)	DeviceNet Interconnecting Feeder Control Cable—5, 10, 25, or 50 ft (Order separately)	H: 13 in (330 mm) W: 7 in (178 mm) D: 7 in (178 mm)	H: 13 in (330 mm) W: 9 in (229 mm) D: 10 in (254 mm)	Single ROI 12 lb (5.4 kg) Dual ROI 15 lb (6.8 kg)

### 4 Wire Drive Motor Assembly Options (To be used with Remote Operator Interface.)

Wire drive motor assemblies do NOT include drive rolls or required Motor Control Cable. These must be ordered separately.

*Note: Left- and right-hand drives are determined by facing the wire feed gun outlet.*



**AA-40GB Wire Drive Motor Assembly**

**#195 426** Left-Hand Drive

**#195 515** Right-Hand Drive

The AA-40GB Wire Drive Motor Assembly with OCP (Over Current Protection) is an improved version of the AA-40G. The motor control cable

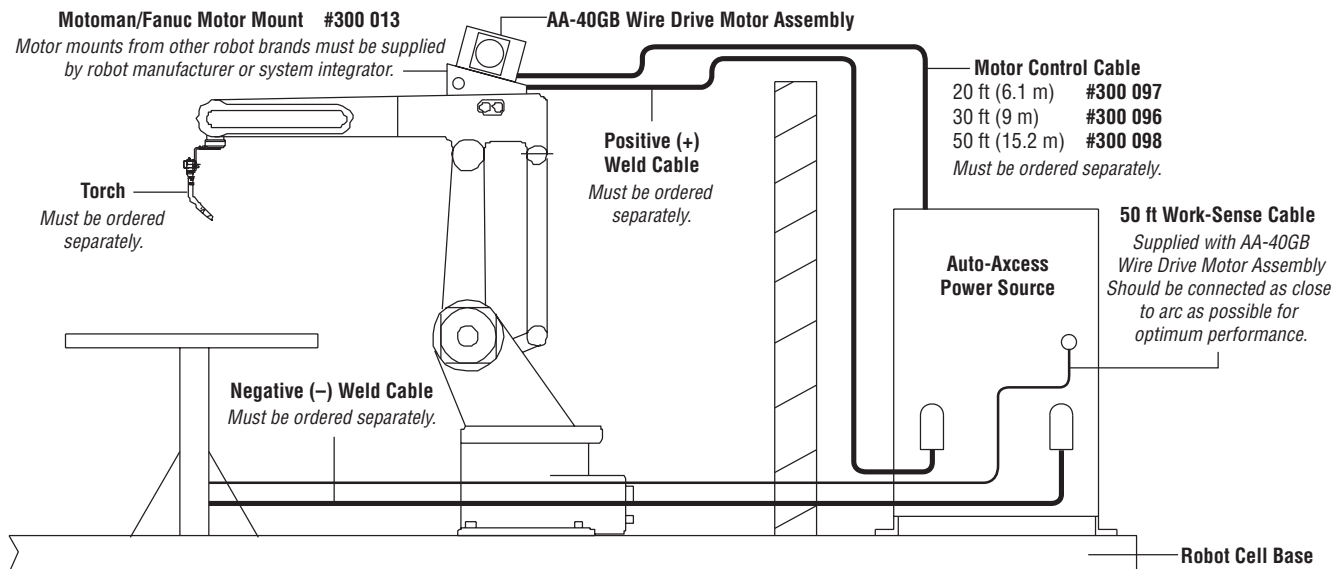
now mounts directly to the gas box, reducing strain on the tachometer wires. OCP provides another layer of protection in the event a cable is damaged or shorted, reducing downtime and motor damage. Motors include a 50 ft volt-sense lead.

Model	Gas Valve	Type of Input Power	Connection to ROI	Wire Feed Speed Range*	Wire Diameter Range	AA-40GB Dimensions	Ship Weight
AA-40GB	Included and enclosed	40 VDC (from Axxess)	Motor Control Cable—20, 30, or 50 ft (Order separately)	50–1400 IPM (1.3–35.56 MPM)	.035–3/32 in (0.9–1.6 mm)	H: 8 in (203 mm) W: 12 in (305 mm) D: 10 in (254 mm)	23 lb (10.4 kg)

*\*This is the wire feed speed range while using MIG. With pulsed MIG, the wire feed speed range may be more limited.*

## Typical Auto-Access® Installation (Robotic/Automation Pulsed MIG or Conventional MIG)

The Auto-Access platform is designed to bring the benefits of digital control technology to manufacturers who currently use analog robot control. When combined with a Smart Cable (#300 012) and AA-40GB wire drive motor assembly the Auto-Access will automatically reconfigure itself to function as a semi-automatic, thereby providing for single asset management and simplicity. *Contact Robot Manufacturers for fully-digital versions of the Access compatible with specific robot controllers.*



## Auto-Access Power Source



Model	Rated Output	Voltage Range	Amperage Range	Max. Open-Circuit Voltage	Amps Input at Rated Output, 50/60 Hz, 3-Phase							Dimensions	Net Weight
					208 V	230 V	400 V	460 V	575 V	KVA	KW		
Auto-Access 300	300 A at 32 VDC, 60% Duty Cycle (225 A at 29 VDC, 100% Duty Cycle)	10–44 V	5–400 A	80 VDC	33	29.7	16.9	14.6	11.6	11.7	11.2	300 H: 23 in (584 mm) 450 H: 31 in (787 mm) 675 H: 39 in (991 mm) W: 17 in (432 mm) D: 22-1/2 in (572 mm)	116 lb (52.6 kg)
Auto-Access 450	450 A at 44 VDC, 100% Duty Cycle	10–44 V	5–600 A	80 VDC	—	60	33.7	28.8	22.8	22.2	23.1		163 lb (73.9 kg)
Auto-Access 675*	675 A at 44 VDC, 100% Duty Cycle	10–44 V	5–900 A	80 VDC	—	89.7	—	43.7	34.8	35.7	34.4		208 lb (94.3 kg)

Certified to both the Canadian and U.S. Standards for welding equipment. \*Auto-Access 675 is not CSA approved.

## Wire Drive Motor Assembly

Wire drive motor assemblies do NOT include drive rolls or required Motor Control Cable. These must be ordered separately.  
Note: Left- and right-hand drives are determined by facing the wire feed gun outlet.



### AA-40GB Wire Drive Motor Assembly

#195 426 Left-Hand Drive

#195 515 Right-Hand Drive

The AA-40GB Wire Drive Motor Assembly with OCP (Over Current Protection) is an improved version of the AA-40G. The motor control cable

now mounts directly to the gas box, reducing strain on the tachometer wires. OCP provides another layer of protection in the event a cable is damaged or shorted, reducing downtime and motor damage. Motors include a 50 ft volt-sense lead.

Model	Gas Valve	Type of Input Power	Connection to Power Source	Wire Feed Speed Range*	Wire Diameter Range	AA-40GB Dimensions	Ship Weight
AA-40GB	Included and enclosed	40 VDC (from Auto-Access)	Motor Control Cable—20, 30, or 50 ft (Order separately)	50–1400 IPM (1.3–35.56 MPM)	.035–3/32 in (0.9–1.6 mm)	H: 8 in (203 mm) W: 12 in (305 mm) D: 10 in (254 mm)	23 lb (10.4 kg)

\*This is the wire feed speed range while using MIG. With pulsed MIG, the wire feed speed range may be more limited.



## Palm OS® Based Software Options

### Palm™ Convenience Package (Access File Management and WaveWriter software not included)



**#195 517** Includes a compatible Palm™ handheld loaded with Service Pak software and a Palm™ serial cable that connects the Palm and Access®.

*Note: Palm model may vary and Access File Management and WaveWriter software are sold separately.*

### Access® File Management (required Palm Handheld not included)



**#195 249** Includes Palm™ serial cable and expansion card.

Simply put, the new Miller (Palm™ OS-based) file management software turns a standard handheld (PDA) into a data card and a remote pendant control for all Access systems. This is in addition to all other functions a handheld is typically used for. By using a handheld in this manner, we have built a powerful

intuitive interface on a common affordable, portable platform. This opens the door to functions and capabilities not previously available from Miller or from the welding industry as a whole.

#### With Miller's Access File Management installed on your Palm OS handheld you can:

- E-mail Access files anywhere worldwide
- Configure any Access system as desired
- Configure multiple Access systems exactly the same or any way you choose
- Save and store Access files
- Transfer Access files to computers
- Transfer Access files from machine to machine
- Backup Access files and programs
- Set-up and modify Access welding sequences
- Adjust and store welding program Locks & Limits for restricting or limiting operator "Access" to programs
- Enable Auto-Thread™ feature to program torch length into Access memory. When a combination of purge and jog (or jog and retract) are depressed, the Access feeding system delivers exact programmed length of wire. Great for troubleshooting wire feed speed and loading wire into the system.

#### There are 3 basic types of files:

- 1) **Programs** – Contain all the welding data that create an arc: volts, amps, wire feed rates, wire type, size, gas and appropriate arc control. They also contain all the time-based functions typically used in welding: pre-flow, start conditions, ramps, crater fill, retract, and post-flow.
- 2) **Configuration** – Files contain Locks, Errors and Feeder information that include robot selection type (**Robot Control** – PS Wire and Gas, **Shared Control** – Arc On-Analog, and **Power Source Control** – Arc On-No Analog). Configuration enables error messages, dual schedule, and remote program select to be selected. It also allows for checking software revisions and arc/ cycle time data. Using configuration you can set Auto-Thread™ torch length allowing for pushbutton feed of an exact wire length.
- 3) **Back-up** – Back-up files allow a convenient and simple way to store all files from a welding power source in a Palm handheld.

#### Each type can reside or be "Access"ed in any of 3 locations:

- 1) **Welder** – The welding power source holds the main library of welding programs.
- 2) **Handheld** – The handheld acts as an interim storage device where files can be pulled from the power source stored or modified.
- 3) **E-mail** – Files can be stored for Email in this location.

Any of the files can be cut, copied, pasted, modified, UN-protected files can also be beamed through IR port. Copyright-protected and Miller proprietary files cannot be transferred such as Palm Access File Management, WaveWriter™, and RMD™ welding process.

### WaveWriter™ Wave Shaping

(required Palm Handheld not included)

**#195 250** (Includes Palm™ serial cable and expansion card)



WaveWriter is our premium Palm software package for Access systems. For Palm handhelds, it includes all of the Palm Access File Management functions plus a simple, pulsed MIG wave-shaping program for the most demanding pulsed MIG applications. Customers can expect exceptional welding performance from any Access system from the programs for common wire and gas combinations—right out of the box. For those who need to adjust pulse parameters for special situations or to achieve a specific result, WaveWriter will allow anyone to alter a factory program for a specific wire, gas or weld joint configuration. Many welding engineers may find this tool useful in developing their own unique competitive advantage and having their own proprietary weld programs.

With WaveWriter it is possible to change parameters while welding and immediately see the effect of the change in the arc. Real-time feedback helps in understanding the effect of changing the sometimes confusing pulse wave form variables (such as pulse peak, pulse width, background, and rise and fall rates) which saves enormous expense and time in welding procedure development. Most of the essential variables required for process and procedure development are not only precisely controllable and stored, but the upper and lower control limits can be established to assure shop floor control.

## Genuine Miller Accessories

### DeviceNet Interconnecting Feeder Control Cables

- #195 240 5 ft (1.5 m)
- #195 241 10 ft (3 m)
- #195 242 25 ft (7.6 m)
- #195 243 50 ft (15.2 m)

These specially designed EMI (Electrical Magnetic Interference) protected and shielded feeder control cables are required, but not included with Axxess feeders or ROI. Determine length needed and order separately.

### Motor Control Cables

- #300 097 20 ft (6.1 m)
- #300 096 30 ft (9 m)
- #300 098 50 ft (15.2 m)

Includes overmolded connections on high-flex cables for optimal service life.

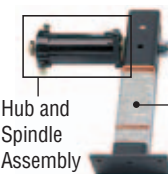


Shown with AA-40GB.

### Access® Feeder Base and Spool Support #195 369

Sheet metal construction. Allows mounting of AA-40GB motor (if desired)

when using ROI option or when using an Auto-Axxess with Smart Cable adapter.



Hub and Spindle Assembly

Spindle Support

### Hub and Spindle Assembly #072 094

### Spindle Support #092 989



### MIGRunner™ XL Cart #195 246

Dimensions: 46-1/2 x W: 42 x D: 35 in. Wide cart with motorcycle-type handle grips. Holds two large gas cylinders and Coolmate™ 3 (when power source is mounted with face toward handles) for water-cooled torches. Power supply can be mounted in several directions while the feeder can be mounted on the top tray. Fits Axxess 300 and 450 models only.

*Note: Dual feeder not recommended for this cart. For dual feeders we recommend using a separate feeder cart (not available).*



### Wire Reel Assembly #108 008



### Spool Covers #057 607

### Reel Covers #058 256

For 60 lb (27 kg) coil. Helps to protect the welding wire from dust and other contaminants.

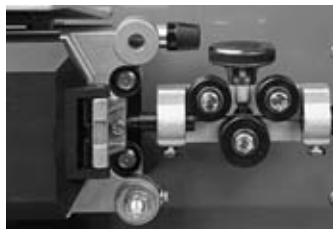
*Note: Reel and Spool Covers cannot be installed if the wire drive assembly is in a rotated position.*

### Turntable Assembly #146 236

Allows rotation of the feeder as the operator changes work positions. Reduces strain and bending on the gun cable.

### Hanging Bail (Electrically Isolated) #058 435

Used for suspending feeder over work area.



### Wire Straightener

#### #141 580

For .035–.045 in (0.9–1.1 mm) dia. wire.

#### #141 581

For 1/16–1/8 in (1.6–3.2 mm) dia. wire.

Helps reduce the cast in wire to improve wire feeding performance and increase the service life of the gun liner and contact tip.

## Dual Schedule Switches



### DSS-8 #079 693

A 15 ft, two-position

trigger switch which attaches to the gun handle and is used in place of the standard trigger for dual scheduling.

### Adapter Cord #157 364

Required for use with DSS-8. 1ft, Y trigger cable that connects DSS switch and control box to the gun.



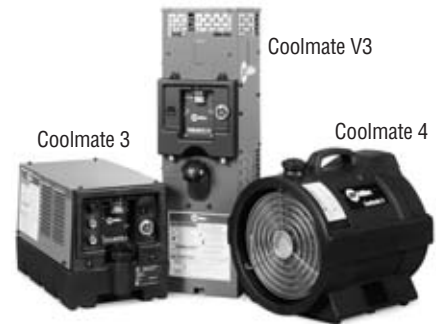
### DSS-9M #041 793

A 15 ft, two-position slide switch

which attaches to the gun handle and is used to select the desired welding condition for dual schedule purposes. The gun trigger operates as a standard trigger.

## Coolant Systems

For more information, see the Miller Coolant Systems literature sheet, Index No. AY/7.2.



### Coolmate™ 3

#### #043 007 115 VAC

#### #043 008 230 VAC

For use with water-cooled torches rated up to 600 amps. Unique paddle-wheel indicator, external filter and easy-fill spout.

### Coolmate™ V3 #043 009 115 VAC

For use with water-cooled torches rated up to 500 amps. Vertical design conveniently mounts to Miller cylinder rack in place of one cylinder.

### Coolmate™ 4 #042 288 115 VAC





For use with water-cooled torches rated up to 600 amps. Tough molded polyethylene case with carrying handle.

### Low Conductivity Coolant #043 810

Sold in cases of four 1-gallon recyclable plastic bottles. Miller coolants contain a base of ethylene glycol and deionized water to protect against freezing to -37°F (-38°C) or boiling to 227°F (108°C). Also contains a compound that resists algae growth.

## Drive Roll Kits (Order from Miller Service Parts.)

Select drive roll kits from chart below according to type and wire size being used. Drive roll kits include 4 drive rolls, the necessary guides and feature an anti-wear sleeve for the inlet guide.

Wire size	 "V" groove for hard wire	 "U" groove for soft wire or soft-shelled cored wires	 "V" knurled for hard-shelled cored wires	 "U" clogged for extremely soft wire or soft-shelled cored wires (i.e., hard facing types)
.035 in (0.9 mm)	#151 026	#151 036	#151 052	—
.040 in (1.0 mm)	#161 190	—	—	—
.045 in (1.1/1.2 mm)	#151 027	#151 037*	#151 053	#151 070
.052 in (1.3/1.4 mm)	#151 028	#151 038	#151 054	#151 071
1/16 in (1.6 mm)	#151 029	#151 039	#151 055	#151 072
.068/.072 in (1.8 mm)	—	—	#151 056	—
5/64 in (2.0 mm)	—	#151 040	#151 057	#151 073
3/32 in (2.4 mm)	—	#151 041	#151 058	#151 074
7/64 in (2.8 mm)	—	#151 042	#151 059	#151 075
1/8 in (3.2 mm)	—	#151 043	#151 060	#151 076

\*Accommodates .045 and .047 (3/64 in) wire.

### Nylon Wire Guides for Feeding Aluminum Wire

Wire size	Inlet Guide	Intermediate Guide
.047 (3/64) in (1.2 mm)*	#151 203	#151 204
1/16 in (1.6 mm)	#151 205	#151 206
3/32 in (2.4 mm)	#151 207	#151 208

Note: "U groove" drive rolls are recommended when feeding aluminum wire.

\*Pushing .047 (3/64) in (1.2 mm) wire is not recommended in torches greater than 10 ft in length.

### Wire Guides

Wire size	Inlet Guide	Intermediate Guide
.023–.040 in (0.6–1.0 mm)	#150 993	#149 518
.045–.052 in (1.1–1.4 mm)	#150 994	#149 519
1/16–5/64 in (1.6–2.0 mm)	#150 995	#149 520
1/16–5/64 in (2.4–2.8 mm)	#150 996	#149 521
1/8 in (3.2 mm)	#150 997	#149 522

## Genuine Miller Services and Accessories (For robotic/automation applications only.)

### Consulting Services

**Field Application Support #195 480**  
Auto-Access systems may require factory-trained technical support depending on the complexity of the application and the local availability and capability of qualified welding engineers or robotic experts. You should contact the factory if there are questions. Factory support is available at a flat rate of \$1250.00 per day plus expenses when planned and ordered more than 10 days in advance. Rates and availability of our technical specialists with less than 10 day notice are considerably more. Rates are based on a 10-hour day including travel. One day minimum.

### Service and Troubleshooting

**Analog Robot Simulator #195 030**  
Device simulates the analog commands of typical robots. It can be used as a diagnostic tool to determine power source functionality and isolate robot, power source or cable issues.

#### Fanuc Internal Wiring Kit #300 229

Includes 30 ft cable that connects to the Fanuc controller, and 22 in connector for mounting the wire drive assembly on top of the robot arm.

#### Receptacle/Adapter Kits

#194 793 ABB  
#194 791 Fanuc  
#194 790 Motoman  
#300 056 Panasonic  
#195 002 Universal

One required per machine. For analog communication with robot controls via 72-pin Harting connector on Auto-Access. 1-ft length.

#### Smart Adapter #300 012

Allows Auto-Access to be configured to function as semi-automatic. To be used when there is a desire to have a common power supply and motor in both robotic and semi-automatic application. Easy asset management. 21-ft trigger control cable is included.

#### Universal Connector for Analog Control #195 002

Includes mating Harting connector with pins to allow custom configuration for robotic and fixed automation applications.

#### Fanuc/Motoman Wire Drive Motor Assembly Mounting Bracket #300 013

#### Shell Connector #194 847

For use by anyone wishing to interface peripherals, but not wanting to source the appropriate female amphenol connector.



#### Coolant Flow Switch #195 461

To ensure coolant is flowing in the system. Lack of coolant flow may

cause damage to water-cooled guns. Module allows wiring into the peripheral connector port. 50 ft (15.2 m) cable with connector and separate shell connector for simple modification to desired length in the field. It can be mounted on the Auto-Access or as desired elsewhere. 1/4-turn quick connection.

### Fixed or Hard Automation Accessories

#### Oscillators and Motorized Cross Slides

Refer to Lit. Index No. AU/6.0.

Welding Guns — see [www.bernardwelds.com](http://www.bernardwelds.com)

# Ordering Information

Learn More at [MillerWelds.com/AMS](http://MillerWelds.com/AMS)

Semi-Automatic Equipment Options	Stock No.	Description	Qty.	Price
Access® 300	#907 150 #907 150-01-1	Power source only Power source with RMD™ software upgrade		
Access® 450	#907 152 #907 152-01-1	Power source only Power source with RMD™ software upgrade		
Access® 675	#907 154	Power source		
Access® 300 Packages	#951 038 #951 039	Power source, bench feeder and 5 ft cable Power source with RMD™ software upgrade, bench feeder and 5 ft cable		
Access® 450 Packages	#951 031 #951 037	Power source, bench feeder and 5 ft cable Power source with RMD™ software upgrade, bench feeder and 5 ft cable		
<b>Note: Other power sources are available. Consult factory at 1-920-954-3813 for power sources with E-Stop option.</b>				
<b>Wire Feeder Options (see page 6)</b>				
Access® Single Feeder	#195 182	Bench/skid feeder — order DeviceNet Interconnecting Feeder Control Cable separately		
Access® Dual Feeder	#195 325	Bench/skid feeder — order DeviceNet Interconnecting Feeder Control Cable separately		
<b>ROI Options (see page 7)</b>				
Single ROI	#195 238	See page 6 for connection diagram and required cables		
Dual ROI	#195 433	See page 6 for connection diagram and required cables		
Auto ROI (see note above)	#195 239	See page 6 for connection diagram and required cables. <b>Requires power source with E-Stop option — consult factory at 1-920-954-3813</b>		
Access® ROI Swingarc™ Boom		See page 7 for various models		
Dual Swingarc™ Retrofit Kit	#300 032	Required when replacing motors on older Dual 60 Series Swingarc booms		
<b>Wire Drive Assembly Opt. (see page 7)</b>				
AA-40GB Wire Drive Motor Assembly		New-style wire drive assembly. See page 6 for connection diagram and required cables		
<b>Control Cables (see page 10)</b>				
		See page 6 for connection diagram and required cables		
<b>Automatic Equipment Options*</b>				
Auto-Access® 300 (Robotic receptacle kit sold separately)	#907 151 #907 151-01-1	190–630 V. Inverter power supply with robotic interface 190–630 V. Inverter power supply, robotic interface, and RMD software upgrade		
Auto-Access® 450 (Robotic receptacle kit sold separately)	#907 153 #907 153-01-1	190–630 V. Inverter power supply with robotic interface 190–630 V. Inverter power supply, robotic interface, and RMD software upgrade		
Auto-Access® 675	#907 155	190–630 V. Inverter power supply with robotic interface		
<b>Motor/Kit/Cable Options</b>				
Wire Drive Motor Assembly		See page 8		
Motor Control Cable (see page 10)		See page 8 for connection diagram and required cables		
Receptacle/Adapter Kits		See page 11. <i>One required per machine, consult factory</i>		
<b>Palm OS® Based Software Options</b>				
Palm™ Convenience Package	#195 517	Palm model may vary (File Management and WaveWriter software NOT included)		
Access® File Management	#195 249	File management software (required Palm™ handheld NOT included)		
WaveWriter™ Wave Shaping	#195 250	File management software with wave shaping (required Palm™ handheld NOT included)		
<b>Software-Based Welding Process Opt.</b>				
RMD™ (Regulated Metal Deposition)	#195 252	Field (required Palm™ handheld NOT included)		
<b>Accessories</b>				
Access® Feeder Base and Spool Support	#195 369	Allows mounting of AA-40GB motor when using ROI option		
Hub and Spindle Assembly	#072 094			
Spindle Support	#092 989			
MIGRunner™ XL Cart	#195 246	Holds two cylinders, cooler, machine and feeder		
Coolant Systems		See page 10		
Drive Roll Kit (Required)		See page 11		
Inlet/Intermediate Guides		See page 11		
Smart Adapter	#300 012	Robotic/automation. Allows automatic to function as semi-automatic		
Universal Connector for Analog Control	#195 002	Robotic/automation. Allows custom configuration		
Field Application Support	#195 480	Robotic/automation. One day minimum, not subject to discount. See page 11		
Analog Robot Simulator	#195 030	Robotic/automation. See page 11		

## Date:

\*The Access is a fully digital machine and utilizes DeviceNet protocol for internal system operation. Select robot manufacturers have created unique software for specific controllers which enable them to communicate digitally with an Access power supply. Check with your robot supplier of choice to further understand if there are benefits created by them that can reduce complexity, add value or reduce your total cost of integration and operation. Welding Distributors: you may also inquire with the robot manufacturer about drop-ship programs they may offer for digital or analog versions of the Access platform.

Distributed by:





# CP-302

Issued May 2007 • Index No. DC/13

**MIG Welding  
Power Source**



## Quick Specs

### Industrial/Heavy Industrial Applications

Light Fabrication  
Automotive  
Furniture  
Agricultural  
Truck Body/Metal Fabrication  
Small Equipment Manufacturing

### Processes

MIG (GMAW)  
Flux Cored (FCAW)

**Input Power** 3-Phase Power

**Rated Output** 300 A at 32 V, 100% Duty Cycle  
390 A at 32 V, 60% Duty Cycle

**Max. Open-Circuit Voltage** 14–44

**Weight** 332 lb (151 kg)

## The Power of Blue.®

**CP-302 MIGRunner™** comes complete in one box. See page 4 for details.

**Adjustable weld stabilizer** (high-low inductance) provides the flexibility to produce the optimal arc characteristics. Use the high stabilizer setting for stainless steel and low setting for mild steel and aluminum.

**Solid-state weld contactor** provides longevity to match the ultra-durable and reliable reputation of the CP series.

**115 VAC duplex receptacle** provides 15 amps of auxiliary power.

**14-pin receptacle** provides quick, direct connection to wire feeders and accessories.

**Presettable welding voltage** with voltmeter allows you to easily set weld output before welding.

**Large analog volt and ammeters** for easy viewing.

**Power efficient** which gives exceptional value and return on your investment.

**Simple control panel** with just one control adjustment.

**Lower panel cover** protects output connections from harsh welding environments.



**TRUE BLUE®**  
3YR. WARRANTY

Welder is warranted for 3 years, parts and labor. Original main power rectified parts are warranted for 5 years.

**MADE IN USA**  
APPLETON, WI



**Miller Electric Mfg. Co.**  
An Illinois Tool Works Company  
1635 West Spencer Street  
Appleton, WI 54914 USA

**International Headquarters**  
Phone: 920-735-4505  
USA FAX: 920-735-4134  
Canadian FAX: 920-735-4169  
International FAX: 920-735-4125

**Web Site**  
[www.MillerWelds.com](http://www.MillerWelds.com)



# Specifications (Subject to change without notice.)



Rated Output	Open-Circuit Voltage	Amps Input at Rated Output, Three-Phase, 60 Hz						Dimensions	Net Weight
		200 V	230 V	460 V	575 V	KVA	KW		
300 A at 32 V, 100% Duty Cycle	14–44	38	33	16.5	13.0	13.1	12.3	H: 30 in (762 mm) including lift eye W: 23 in (585 mm) D: 30-1/2 in (775 mm) including strain relief	332 lb (151 kg)
390 A at 32 V, 60% Duty Cycle		1.1*	.95*	.48*	.38*	.38*	.32*		

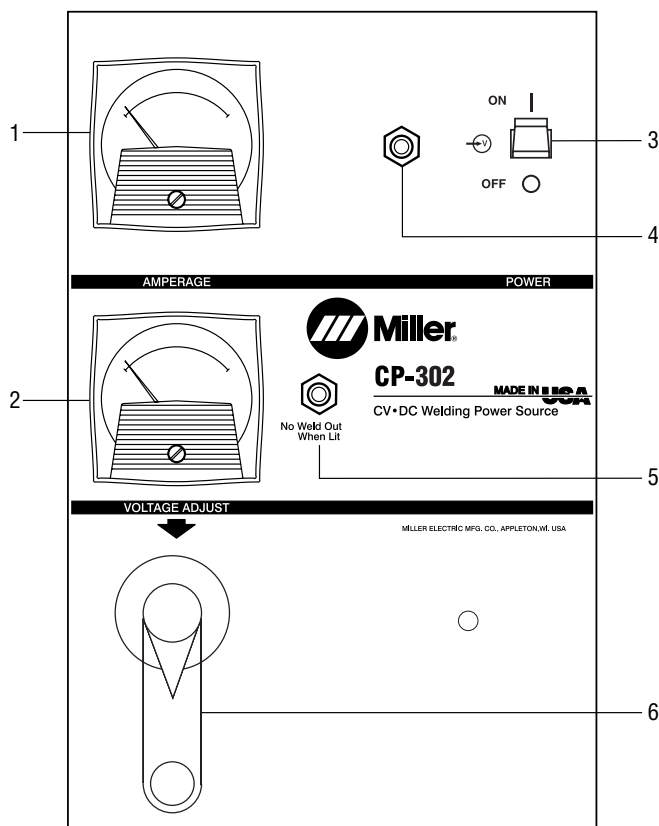
Conforms with NEMA EW 1, "Electric Arc Welding Power Sources", Class I (100).

\*While idling.

Certified to both the Canadian and U.S. Standards for welding equipment.

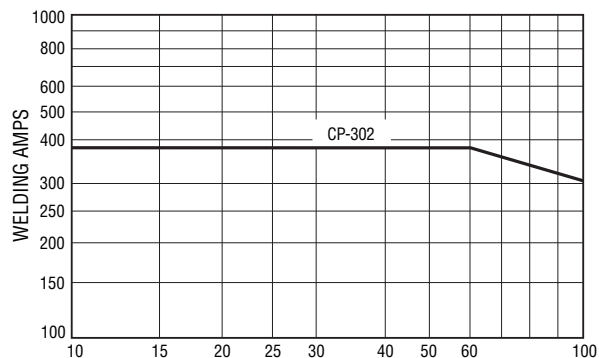
## Control Panel

1. Ammeter
2. Voltmeter
3. Power Switch
4. Pilot Light
5. Preset Indicator Light
6. Voltage Control

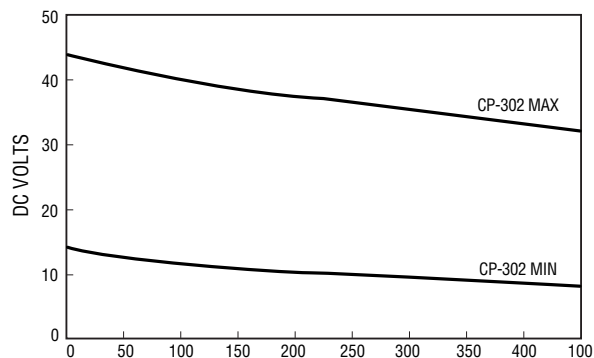


## Performance Data

DUTY CYCLE CHART



VOLT/AMP CURVE



## Genuine Miller Accessories



### Industrial MIG Kit #195 197

Includes 15 ft (4.6 m), 2/0 power cable and work lead with clamp, regulator/flow meter with 15 ft (4.6 m) gas hose, 15 ft (4.6 m) MIG gun and consumable kit.



### Standard Running Gear #042 886

The large 10 in (254 mm) rear wheels and 5 in (127 mm) front casters on this running gear provide excellent mobility on the shop floor, making it easier to move the power source. Very easy to install. Handles double as weld cable holder.

### Standard Cylinder Rack #042 887

Holds two cylinders. Only installs on Standard Running Gear.

## Wire Feeders



### 22A #193 066

Lightweight, 24 VAC constant-speed semi-automatic wire feeder, best suited for small diameter wires. Accommodates up to a 60 lb (27.2 kg) spool of welding wire when using optional wire reel assembly. Comes with FREE Bernard® Q™-Gun! See Lit. Index No. M/11.0.



### 70 Series

#### Single Wire Model

**S-74S #195 057**

#### Dual Wire Model

**D-74S #195 060**

Heavy-duty, industrial, constant-speed 24 VAC semiautomatic wire feeders in single and dual models, with available digital meters. Ideal for high-duty-cycle MIG welding (GMAW) and Flux Cored welding (FCAW). Accommodates a wide variety of wire sizes and types. Comes with FREE Bernard® Q™-Gun! Dual wire feeder model includes two FREE Q-Guns. See Lit. Index No. M/3.0.

### Extension Cables for 14-Pin Plugs to 14-Pin Sockets

**#122 973** 25 ft (7.6 m)

**#122 974** 50 ft (15.2 m)

**#122 975** 75 ft (22.8 m)



### Spoolmatic® 30A #130 831

A 1-lb, air-cooled spool gun that extends the weld process range by adding a handy portable system for small wire MIG. Rated 200 A at 100% duty cycle. Includes 30 ft (9.1 m) cable assembly. (WC-24 #137 549 for 14-pin.)



### WC-24 Weld Control #137 549

Packaged in a compact, lightweight, non-metallic enclosure, the WC-24 easily mounts directly on the power source.

It's designed for use with Miller CV power sources supplying 24 VAC and 14-pin receptacles. The control includes a board-mounted potentiometer which can alter the drive motor acceleration rate to optimize arc starting performance.

## CP-302 MIGRunner Components

### CP-302 MIGRunner™

#907 050 200/230/460 V

#907 073 575 V

#### Comes Complete With:

- CP-302 power source
- 22A wire feeder
- Bernard® Q™-Gun 15 ft (4.6 m)
- .035/.045 in contact tips
- .035/.045 in reversible drive rolls
- Regulator/flow gauge with gas hose
- Work cable and power cord
- Factory-installed running gear/cylinder rack



## Ordering Information

Equipment and Options	Stock No.	Description	Qty.	Price
<b>CP-302</b>	<b>#903 786</b>	200/230/460 V, 60 Hz		
	<b>#903 521</b>	575 V, 60 Hz		
<b>CP-302 MIGRunner</b>	<b>#907 050</b>	200/230/460 V, 60 Hz. See above for package components		
<b>Wire Feeders</b>				
22A	<b>#193 066</b>	See Lit. Index No. M/11.0		
70 Series	<b>#195 057</b>	S-74S. See Lit. Index No. M/3.0		
	<b>#195 060</b>	D-74S. See Lit. Index No. M/3.0		
Extension Cables for 14-Pin Plugs to 14-Pin Sockets	<b>#122 973</b>	25 ft (7.6 m)		
	<b>#122 974</b>	50 ft (15.2 m)		
	<b>#122 975</b>	75 ft (22.8 m)		
Spoolmatic® 30A	<b>#130 831</b>	1-lb air-cooled spool gun, 200 A at 100% duty cycle, includes 30 ft (9.1 m) cable assembly		
WC-24 Weld Control	<b>#137 549</b>			
<b>Guns</b>				
Bernard® Gun				
Consumables				
<b>Accessories</b>				
Industrial MIG Kit	<b>#195 197</b>	Includes 15 ft (4.6 m), 2/0 power cable and work lead with clamp, regulator/flow meter with 15 ft (4.6 m) gas hose, 15 ft (4.6 m) MIG gun and consumable kit		
Standard Running Gear	<b>#042 886</b>			
Standard Cylinder Rack	<b>#042 887</b>			

Date:

Total Quoted Price:



Distributed by:



# Delta-Fab System

Issued January 2006 • Index No. DC/15

**MIG Welding  
Power Source**



## Quick Specs

### Industrial Applications

Heavy-to-Light Fabrication

### Processes

MIG (GMAW)  
with mild steel, flux cored,  
stainless steel, and  
aluminum wires

### Delta-Fab

**Input Power** 3-Phase, 230/460/575 V

### Rated Output

375 A at 100% Duty Cycle  
450 A at 60% Duty Cycle

**Voltage** 10–45 V

**Weight** 374 lb (170 kg)

### 24A Wire Feeder

**Input Power** 24 VAC / 7 A

### Electrode Wire Diameter Capacity

.023–3/32 in (0.08–2.4 mm)

**Wire Speed** 75–750 IPM (1.9–16.5 m/min)

**Remote Voltage Control** Standard

**Weight** 40 lb (18 kg)

## The Power of Blue.®

**Run-in standard on 24A** for better arc-starting performance on a variety of wires.

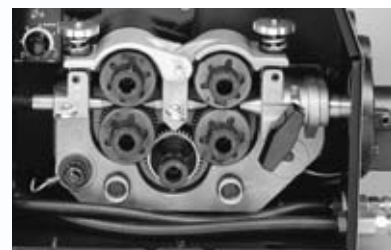
**Remote voltage control is standard.** Parameter adjustments can be made in weld cell or at a remote location.

**Adjustable material output studs** provide the flexibility to produce the optimal arc characteristics for aluminum, stainless steel and all other materials.

**Solid-state weld contactor** provides longevity to match the ultra-durable and reliable reputation of the Delta-Fab.

**Large output voltage range** provides more flexibility on a variety of wire diameters. Also aids operator with voltage losses that occur when operating long distances from power source.

Shown with Bernard®  
Q-400 15 ft MIG gun.



**Four-Drive-Roll feeding system with independent tension control** handles small and large diameter wires. (Drive rolls and guides ordered separately.)

**Large analog volt and ammeters** for easy viewing.

**14-pin receptacle** provides quick, direct connection to wire feeders and accessories.

**115 VAC duplex receptacle** provides 15 amps of auxiliary power.

**14-pin select** is easy to set up with no external switches to put in the wrong position.



Welder is warranted for 3 years, parts and labor. Original main power rectified parts are warranted for 5 years.

MADE IN **USA**  
APPLETON, WI **USA**



**Miller Electric Mfg. Co.**  
An Illinois Tool Works Company  
1635 West Spencer Street  
Appleton, WI 54914 USA

**International Headquarters**  
Phone: 920-735-4505  
USA FAX: 920-735-4134  
Canadian FAX: 920-735-4169  
International FAX: 920-735-4125

**Web Site**  
[www.MillerWelds.com](http://www.MillerWelds.com)



## Delta-Fab Specifications (Subject to change without notice.)

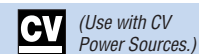


Rated Welding Output	Voltage Range DC	Amps Input at Rated Load Output, 60 Hz, Three-Phase					Dimensions	Net Weight
		230 V	460 V	575 V	KVA	KW		
375 A at 35 VDC, 100% Duty Cycle	10–45	69 4*	34.5 2*	27.5 1.6*	27.5 1.61*	17.5 0.46*	H: 30 in (762 mm) (including lift eye) W: 23 in (585 mm) D: 30-1/2 in (775 mm) (including strain relief)	374 lb (170 kg)

\*While idling.

Certified to both the Canadian and U.S. Standards for welding equipment.

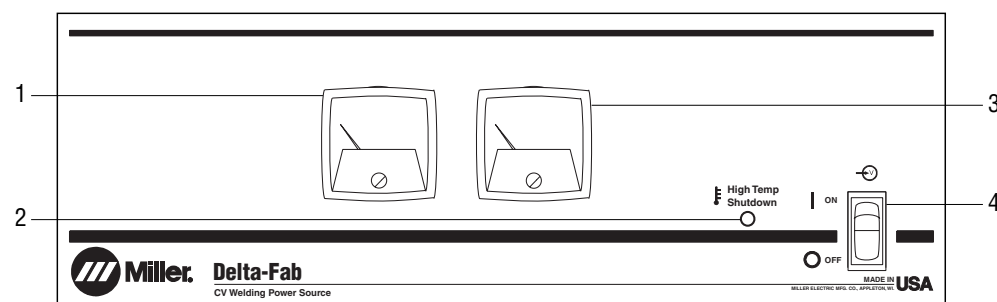
## 24A Wire Feeder Specifications (Subject to change without notice.)



Input Power	Electrode Wire Diameter Capacity	Maximum Spool Size Capacity	Wire Speed	Dimensions	Net Weight
24 VAC, 7 A, 60 Hz	.023–3/32 in (0.08–2.4 mm)	60 lb (27.2 kg)	75–750 IPM (1.9–16.5 m/min)	H: 11 in (279 mm) W: 10-3/4 in (273 mm) D: 23-1/2 in (597 mm)	40 lb (18 kg)

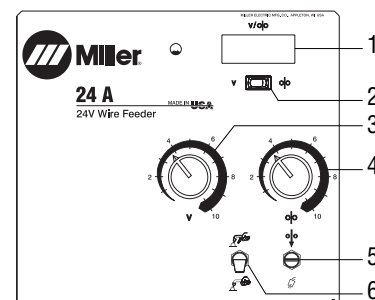
Conforms to European standards.

## Control Panels



1. Voltage Meter
2. High Temperature Shutdown Light
3. Amperage Meter
4. Power Switch with Indicator Light

Note: Weld output studs are energized by controls on the wirefeeder.  
Turn off power before connecting remote device.



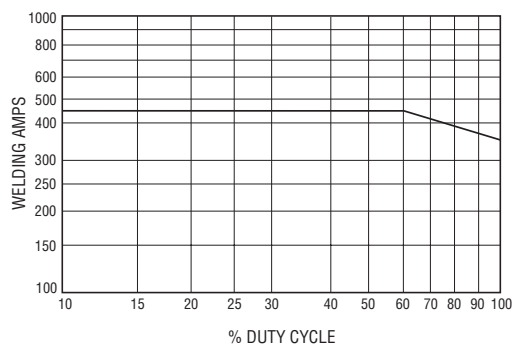
1. Voltage/Wire Speed Meter\*
2. Voltage/Wire Speed Switch\*
3. Remote Voltage Control Standard
4. Wire Speed Control
5. Jog/Purge Switch
6. Trigger Hold Switch

\*Optional

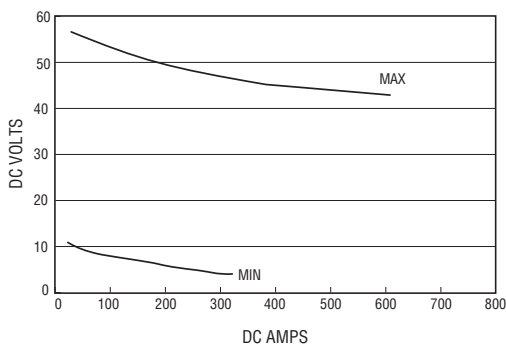
Note: Power switch is on rear panel.

## Performance Data





DUTY CYCLE CHART – DELTA-FAB



VOLT/AMP CURVE – DELTA-FAB



## Drive Roll Kits Select drive roll kits from chart below according to type and wire size being used. Kit includes (4) drive rolls and inlet guide.

Wire size	"V" groove for hard wire 	"U" groove for soft wire or soft-shelled cored wires 	"V" knurled for hard-shelled cored wires 	"U" clogged for extremely soft wire or soft-shelled cored wires (i.e., hard facing types) 
.023/.025 in (0.6 mm)	#087 132	—	—	—
.030 in (0.8 mm)	#046 780	—	—	—
.035 in (0.9 mm)	#046 781	#044 750	#046 792	—
.040 in (1.0 mm)	#191 917	—	—	—
.045 in (1.1/1.2 mm)	#046 782	#046 785	#046 793	#083 319
.052 in (1.3/1.4 mm)	#046 783	#046 786	#046 794	#083 320
1/16 in (1.6 mm)	#046 784	#046 787	#046 795	#046 800
.068/.072 in (1.8 mm)	—	—	#089 985	—
5/64 in (2.0 mm)	—	#046 788	#046 796	#046 801
3/32 in (2.4 mm)	—	#046 789	#046 797	#046 802

\*Accommodates 3/64 in (.045 and .047 mm) wires.

## Nylon Wire Guides for Feeding Aluminum Wire

Wire Size	Inlet Guide	Intermediate Guide
.047 in (1.2 mm)	#151 203	#058 837
1/16 in (1.6 mm)	#151 205	#058 853
3/32 in (2.4 mm)	#151 207	#058 841

*Note: "U" groove drive rolls are recommended when feeding aluminum wire.*

## Genuine Miller Options

**Digital Meter #186 498** Field  
Dual-function, back-lit LCD digital meter with selector switch. The digital meter allows the wire feed speed to be preset in meters per minute or inches per minute. The voltage function will only monitor and display the arc voltage. The voltage display can also be calibrated if required.

**Preflow/Postflow and Spot Control #186 496** Field  
Installs inside feeder under an easy access hinged cover. Provides up to 5 seconds of spot weld time and has adjustable timers (0.25 to 5 sec.) for controlling gas flow prior to arc initiation and after completion of weld.

## Genuine Miller Accessories



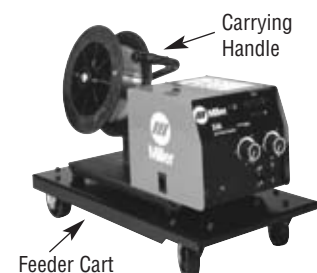
**Standard Running Gear #042 886**  
The large 10 in (254 mm) rear wheels and 5 in (127 mm) front casters on this running gear provide excellent mobility on the shop floor, making it easier to move the power source. Very easy to install. Handles double as weld cable holder.

**Standard Cylinder Rack #042 887**  
Holds two cylinders. Only installs on Standard Running Gear.



**Turntable Assembly #146 236**  
Allows rotation of the feeder as the operator changes work positions. Reduces strain and bending on the gun cable.

**Wire Reel Assembly #108 008**  
For 60 lb (27 kg) coil of wire.  
(Cannot use when handle is installed.)

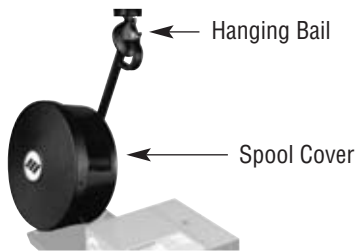


**Feeder Cart #043 698** Field  
A low-profile creeper cart with high-quality rubber casters, front swivel and rear rigid.

## Genuine Miller Accessories (Continued)

### Carrying Handle #193 762

For lifting and moving feeder.



### Hanging Bail #058 435

Suspends feeder over the work area.

### Reel Cover #058 256

For 60 lb (27.2 kg) coil.

### Spool Adapter #047 141

For use with 14 lb (6.4 kg) spool of Lincoln self-shielding wire.

### Extension Cords

#122 973 25 ft (7.6 m)

#122 974 50 ft (15 m)

#122 975 75 ft (23 m)

Used to extend interconnecting cords.

### Spool Cover #057 607

For 12 in (304 mm) spool.

## Ordering Information

Equipment and Options	Stock No.	Description	Qty.	Price
<b>Delta-Fab System</b>	<b>#951 022</b>	375 A at 35 VDC, 100% Duty Cycle, 60Hz, Three-Phase with 24A Four-drive-roll wire feeder		
Drive Roll Kit		See Drive Roll Kits table (page 3)		
Digital Meter	<b>#186 498</b>	Field		
Preflow/Postflow and Spot Control	<b>#186 496</b>	Field		
<b>Accessories</b>				
Standard Running Gear	<b>#042 886</b>			
Standard Cylinder Rack	<b>#042 887</b>			
Wire Reel Assembly	<b>#108 008</b>	For 60 lb (27.2 kg) coil		
Feeder Cart	<b>#043 698</b>	Field		
Carrying Handle	<b>#193 762</b>			
Turntable Assembly	<b>#146 236</b>			
Hanging Bail	<b>#058 435</b>			
Spool Cover	<b>#057 607</b>	For 12 in (304 mm) spool		
Reel Cover	<b>#058 256</b>	For 60 lb (27.2 kg) coil		
Spool Adapter	<b>#047 141</b>	For 14 lb (6.4 kg) Lincoln spool		
Extension Cords	<b>#122 973</b>	25 ft (7.6 m)		
	<b>#122 974</b>	50 ft (15 m)		
	<b>#122 975</b>	75 ft (23 m)		

Date:

Total Quoted Price:



Distributed by:



# Deltaweld® Series

Issued May 2007 • Index No. DC/16.2

**MIG Welding**  
**Power Source**



## Quick Specs



### Heavy Industrial Applications

Heavy Equipment Manufacturing  
Truck and Trailer Manufacturing  
Ship and Boat Building  
Tank/Pressure Vessel Fabrication  
Manufacture of Automotive Equipment  
Railcar/Locomotive Fabrication and Repair  
Furniture Manufacture  
Structural Steel Fabrication  
Sheet Metal Fabrication  
Maintenance

### Processes

MIG (GMAW)  
Flux Cored (FCAW)  
Air Carbon Arc (CAC-A)  
Cutting and Gouging  
Submerged Arc (SAW)

**Input Power** 302/402: 3-Phase Power  
452/602: 3-Phase Power  
652/852: 3-Phase Power

**Rated Output** 302/402: 300 A at 32 VDC, 100% Duty Cycle  
452/602: 450 A at 38 VDC, 100% Duty Cycle  
652/852: 650 A at 44 VDC, 100% Duty Cycle

**Weight** 302/402: 323 lb (147 kg)  
452/602: 384 lb (174 kg)  
652/852: 472 lb (214 kg)

## The Power of Blue.®

**Superior arc welding performance** with MIG welding.

**Internal digital voltage control (DVC)** enables operator to preset weld voltage before striking an arc.

**Two positive output terminals** provide high/low stabilizer selection. Allows operator to optimize arc performance.

**Line voltage compensation** ensures consistent weld performance by keeping output power constant even if primary input power varies by  $\pm 10\%$ .

**Simple control panel** provides easy, efficient operation.

**Digital voltmeter and ammeter** are easy to read, even at 30 ft (9.2 m).

**14-pin receptacle** provides quick, direct connection to Miller 14-pin wire feeders and accessories.

**115 V duplex receptacle** provides 15 amps of auxiliary power.



Deltaweld 452/602

**Remote on/off capabilities** allow operator to turn power source on/off from a distance.

**Remote voltage control** allows operator to change voltage from feeder.

**Power efficient** for exceptional value and return on your investment.

**Fan-On-Demand™** operates only when needed reducing noise, power consumption, and the amount of airborne contaminants pulled through the machine.

**Enclosed circuit boards** provide additional protection from contaminants resulting in longer service life.

**PC board protection** prevents the wire feeder power or other stray voltages (less than 115 VAC) from harming the power source PC board.

**Power cord strain relief** provided for your convenience at installation.

**Thermal overload protection** light indicates power shutdown. Helps prevent machine damage if the duty cycle is exceeded or airflow is blocked.



Power source is warranted for 3 years, parts and labor.  
Original main power rectified parts are warranted for 5 years.

MADE IN **USA**  
APPLETON, WI



**Miller Electric Mfg. Co.**  
An Illinois Tool Works Company  
1635 West Spencer Street  
Appleton, WI 54914 USA

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Phone: 920-735-4505  
USA FAX: 920-735-4134  
Canadian FAX: 920-735-4169  
International FAX: 920-735-4125

**Web Site**  
[www.MillerWelds.com](http://www.MillerWelds.com)

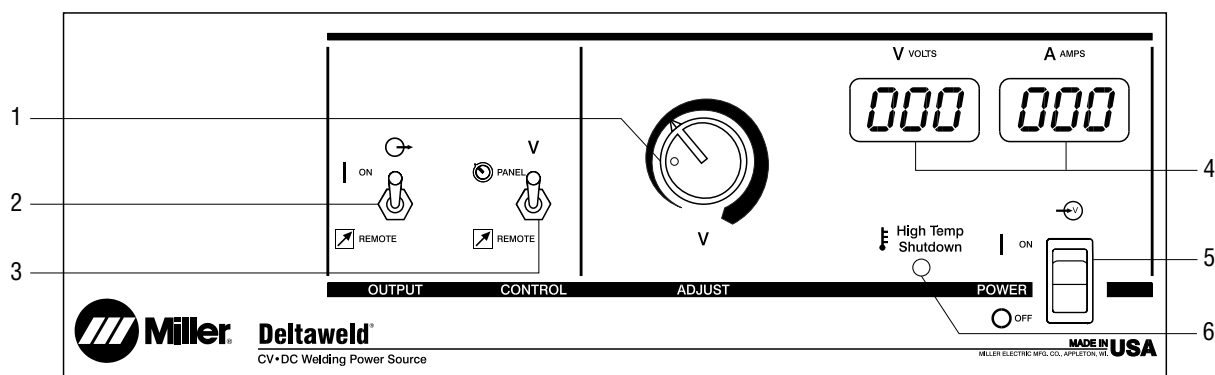


Rated Output	Voltage Range	Recommended Welding Range	Max. Open-Circuit Voltage	Amps Input at Rated Output, 50/60 Hz								KVA KW		Dimensions	Net Weight
300 A at 32 VDC, 100% Duty Cycle	10–32 V	15–32 V	44 VDC	200 V	230 V	380 V	400 V	440 V	460 V	575 V		16.9	12.9	H: 30 in (762 mm) including lift eye W: 23 in (585 mm) D: 30-1/2 in (775 mm) including strain relief	323 lb (147 kg)

Note: For input conductor and fuse size information consult the Owner's Manual.

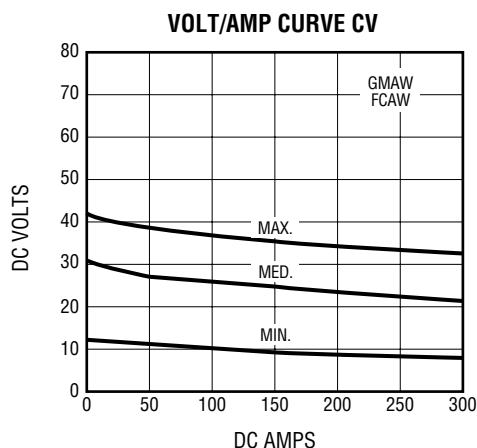
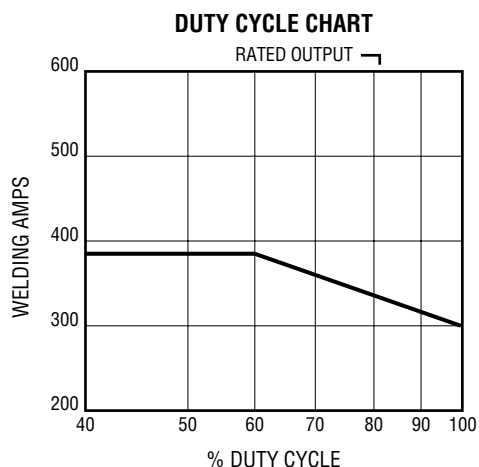
 Certified to both the Canadian and U.S. Standards for welding equipment.

## Control Panel



1. Voltage Adjustment Control
2. Output Switch
3. Remote Voltage Control Switch
4. Digital Meters
5. Power Switch with Indicator Light
6. High Temperature Shutdown Light

## Performance Data



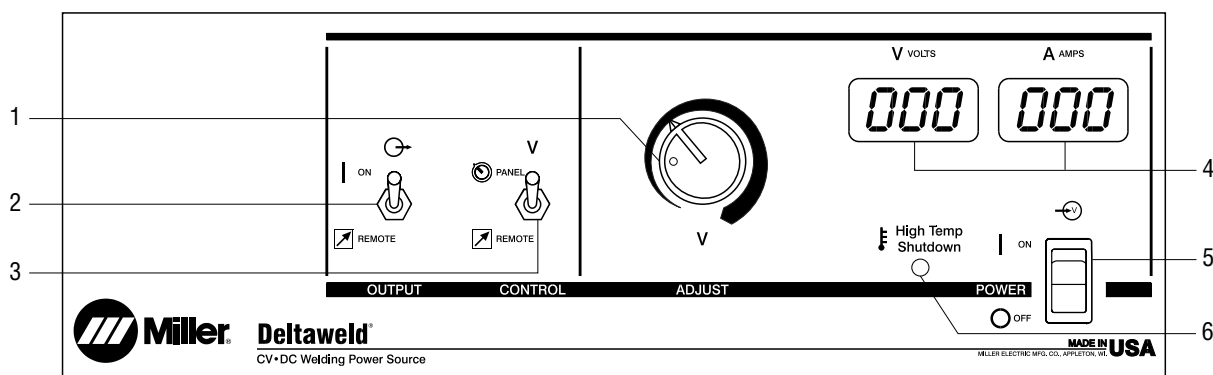
Rated Output	Voltage Range	Recommended Welding Range	Max. Open-Circuit Voltage	Amps Input at Rated Output, 50/60 Hz								KVA KW		Dimensions	Net Weight
450 A at 38 VDC, 100% Duty Cycle	10–38 V	15–38 V	44 VDC	200 V	230 V	380 V	400 V	440 V	460 V	575 V	25.1	21.1		H: 30 in (762 mm) including lift eye W: 23 in (585 mm) D: 38 in (966 mm) including strain relief	384 lb (174 kg)

Note: For input conductor and fuse size information consult the Owner's Manual.

 Certified to both the Canadian and U.S. Standards for welding equipment.

 50 Hz models with CE Specifications are manufactured according to the Standards IEC-974-1 and EN-60974-1.

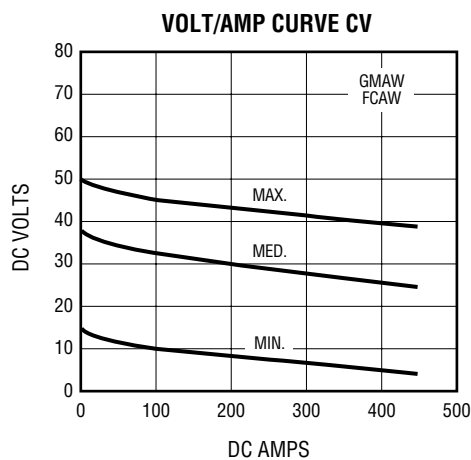
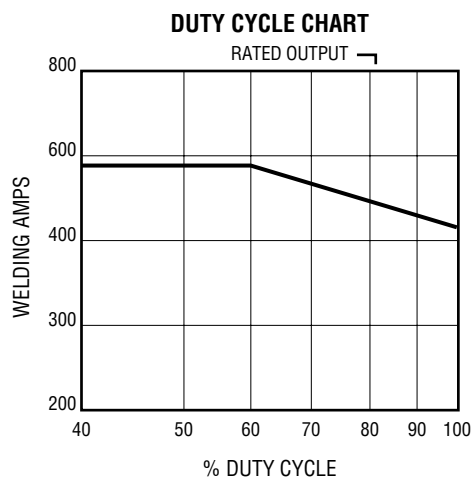
## Control Panel



1. Voltage Adjustment Control
2. Output Switch
3. Remote Voltage Control Switch

4. Digital Meters
5. Power Switch with Indicator Light
6. High Temperature Shutdown Light

## Performance Data



# Deltaweld® 652/852 Specifications (Subject to change without notice.)



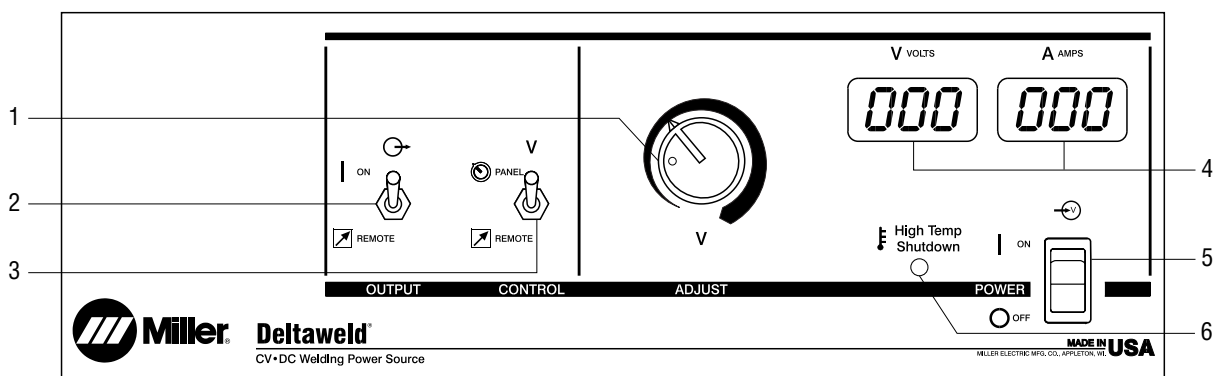
Rated Output	Voltage Range	Recommended Welding Range	Max. Open-Circuit Voltage	Amps Input at Rated Output, 50/60 Hz								Dimensions	Net Weight
650 A at 44 VDC, 100% Duty Cycle	10–44 V	15–44 V	33 VDC	96	58	54	50	48	38	38.2	34.2	H: 30 in (762 mm) including lift eye W: 23 in (585 mm) D: 38 in (966 mm) including strain relief	472 lb (214 kg)

Note: For input conductor and fuse size information consult the Owner's Manual.

Certified to both the Canadian and U.S. Standards for welding equipment.

50 Hz models with CE Specifications are manufactured according to the Standards IEC-974-1 and EN-60974-1.

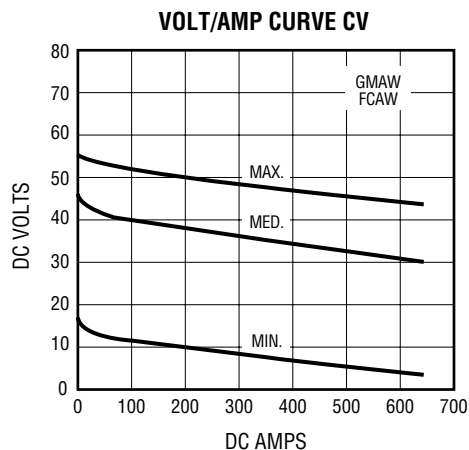
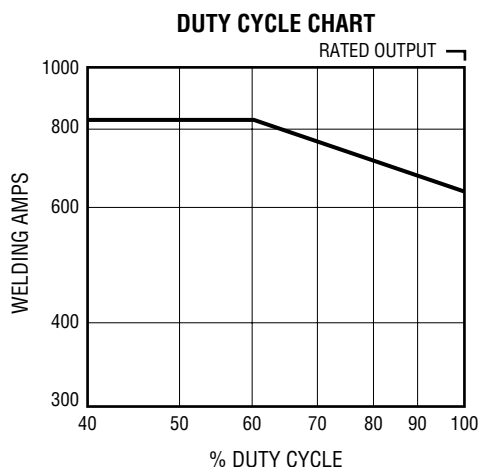
## Control Panel



1. Voltage Adjustment Control
2. Output Switch
3. Remote Voltage Control Switch

4. Digital Meters
5. Power Switch with Indicator Light
6. High Temperature Shutdown Light

## Performance Data





## Genuine Miller Options

**Air Filter Kit #042 939** Field  
Reusable air filter helps protect internal components from dust and dirt, reducing need for maintenance and providing extended service life. Easily attaches and detaches from front of the power source.

**Ground Current Sensor #195 048** Field  
Disables power source if weld current is present on primary ground.

## Genuine Miller Accessories



**Industrial MIG Kit #195 197**  
Includes 15 ft (4.6 m), 2/0 power cable and work lead with clamp, regulator/flow meter with 15 ft (4.6 m) gas hose, 15 ft (4.6 m) MIG gun and consumable kit.

**Remote On/Off Control #042 869**  
Allows you to turn power source on or off from a distance of 20 ft (6 m). This is especially useful if your power source is located up in a mezzanine.

**Polarity Control #042 871**  
This dual-function control is designed for use with dual wire feeders or any application where electrical isolation and/or polarity reversing of weld current is required. Both functions can be used at the same time.

**Process Control Selector #042 872**  
Allows you to easily change weld processes. Also includes features of Polarity Control.

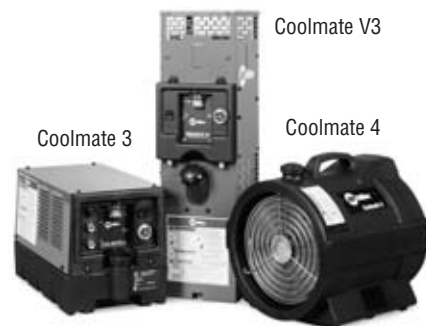


**Standard Running Gear #042 886**  
The large 10 in (254 mm) rear wheels and 5 in (127 mm) front casters on this running gear provide excellent mobility on the shop floor, making it easier to move the power source around and over cables and cracks. Very easy to install. Handles double as weld cable holder.

**Standard Cylinder Rack #042 887**  
Holds two cylinders. Only installs on Standard Running Gear.

## Water Coolant Systems

For more information, see Miller Coolant Systems Lit. Index No. AY/7.2.



**Coolmate™ 3**  
**#043 007** 115 VAC  
**#043 008** 230 VAC  
For use with water-cooled torches rated up to 600 amps. Unique paddle-wheel indicator, external filter and easy fill spout.

**Coolmate™ V3 #043 009** 115 VAC  
For use with water-cooled torches rated up to 500 amps. Vertical design conveniently mounts to Miller cylinder rack in place of one cylinder.

**Coolmate™ 4 #042 288** 115 VAC  
For use with water-cooled torches rated up to 600 amps. Tough molded polyethylene case with carrying handle.

**Coolant #043 810**  
Sold in cases of four 1-gallon recyclable plastic bottles. Miller coolants contain a base of ethylene glycol and deionized water to protect against freezing to -37°F (-38°C) or boiling to 227°F (108°C). Also contains a compound that resists algae growth.

## Wire Feeders



### 70 Series

#### Single Wire Models

**S-74S #195 057**

**S-74D #195 058**

**S-74D #195 058-01-1** High Speed

**S-74DX #195 059**

**S-74DX #195 059-01-1** High Speed

#### Dual Wire Models

**D-74S #195 060**

**D-74D #195 061**

**D-74DX #195 062**

Heavy-duty, industrial, constant-speed 24 VAC semiautomatic wire feeders in single and dual models, with available digital meters. Ideal for high-duty-cycle MIG welding (GMAW) and Flux Cored welding (FCAW). Accommodates a wide variety of wire sizes and types. Comes with FREE Bernard® Q™-Gun! Dual wire feeder models include two FREE Q-Guns. See Lit. Index No. M/3.0.



### 22A #193 066

Simple, reliable, 24 VAC constant-speed semiautomatic wire feeder, best suited for small diameter wires. Features two gear-driven drive rolls for smooth, positive wire feed. Accommodates up to 60 lb (27.2 kg) spool of welding wire when using optional wire reel assembly. Comes with FREE Bernard® Q™-Gun! See Lit. Index No. M/11.0.



### 24A #195 112

Simple, reliable, 24 VAC constant-speed semiautomatic wire feeder, best suited for small diameter wires. Remote voltage is standard. Features four gear-driven drive rolls for larger wire sizes. Accommodates up to 60 lb (27.2 kg) spool of welding wire when using optional wire reel assembly. Comes with FREE Bernard® Q™-Gun! See Lit. Index No. M/11.0.



### XR™-Control #181 538

Push-pull wire feed system offers unparalleled performance for aluminum MIG welding. See Lit. Index No. M/1.7.



### Swingarc™ Boom-Mounted Wire Feeders

Single and dual 24 VAC semiautomatic wire feeders are available with 12 ft (3.7 m) and 16 ft (4.9 m) booms. Ideal for long reach and complete maneuverability when working on large weldments, or in hard-to-reach areas. See Lit. Index No. M/13.11.

### Extension Cables for 14-Pin Plugs to 14-Pin Sockets

**#122 973** 25 ft (7.6 m)

**#122 974** 50 ft (15.2 m)

**#122 975** 75 ft (22.8 m)

This extension cord makes a direct connection between the power source and the accessory control or wire feeder. No messy splicing or adapting required.



## Ordering Information

Equipment and Options	Stock No.	Description	Qty.	Price
<b>Power Source</b>				
<b>Deltaweld® 302</b>	<b>#903 376*</b> <b>#903 392*</b>	200-208/230/460 V, 60 Hz 230/460/575 V, 60 Hz		
<b>Deltaweld® 402</b>	<b>#907 285</b>	380/400/440 V, 50 Hz w/ <b>CE</b>		
<b>Deltaweld® 452</b>	<b>#903 377*</b> <b>#903 394*</b>	200-208/230/460 V, 60 Hz 230/460/575 V, 60 Hz		
<b>Deltaweld® 602</b>	<b>#907 286</b>	380/400/440 V, 50 Hz w/ <b>CE</b>		
<b>Deltaweld® 652</b>	<b>#903 396*</b>	230/460/575 V, 60 Hz		
<b>Deltaweld® 852</b>	<b>#907 287</b>	380/400/440 V, 50 Hz w/ <b>CE</b>		
Air Filter Kit	<b>#042 939</b>	Field		
Ground Current Sensor	<b>#195 048</b>	Field		
<b>Wire Feeders</b>				
70 Series		See Lit. Index No. M/3.0		
22A	<b>#193 066</b>	See Lit. Index No. M/11.0		
24A	<b>#195 112</b>	See Lit. Index No. M/11.0		
XR™-Control	<b>#181 538</b>	See Lit. Index No. M/1.7		
Swingarc™ Boom Feeders		See Lit. Index No. M/13.0		
Extension Cables	<b>#122 973</b> <b>#122 974</b> <b>#122 975</b>	25 ft (7.6 m) 50 ft (15.2 m) 75 ft (22.8 m)		
<b>Miscellaneous</b>				
Industrial MIG Kit	<b>#195 197</b>	Includes 15 ft (4.6 m), 2/0 power cable and work lead with clamp, regulator/flow meter with 15 ft (4.6 m) gas hose, 15 ft (4.6 m) MIG gun and consumables kit		
Remote On/Off Control	<b>#042 869</b>			
Polarity Control	<b>#042 871</b>			
Process Control Selector	<b>#042 872</b>			
Standard Running Gear	<b>#042 886</b>			
Standard Cylinder Rack	<b>#042 887</b>			
Coolmate™ 3	<b>#043 007</b> <b>#043 008</b>	115 VAC 230 VAC		
Coolmate™ V3	<b>#043 009</b>	115 VAC		
Coolmate™ 4	<b>#042 288</b>	115 VAC		
Coolant	<b>#043 810</b>			
Primary Power Cable				
Secondary Welding Cables				
Work Cable and Clamp				

Date:

Total Quoted Price:

\*  Certified to both the Canadian and U.S. Standards for welding equipment.

\*\*  50/60 Hz models with CE Specifications are manufactured according to the Standards IEC-974-1 and EN-60974-1.  
Conforms with NEMA EW 1 "Electric Arc Welding Power Source," Class I (100).

Distributed by:





# Invision™ 456P

Issued January 2005 • Index No. DC/20

**MIG Welding  
Power Source**



## Quick Specs

### Heavy Industrial Applications

Construction  
Shipbuilding  
Railroad  
Manufacturing  
Fabrication  
Repair Shops

### Processes

MIG (GMAW)/Pulsed MIG (GMAW-P)\*  
Flux Cored (FCAW)  
Air Carbon Arc Cutting and Gouging  
(CAC-A)

**Input Power** Requires 3-Phase Power

**Output Power** 10–38 V, 5–600 A

**Weight** Net: 118 lb (53.5 kg) Ship: 129 lb (58.5 kg)

## The Power of Blue.®

**Wind Tunnel Technology™** protects electrical components and PC boards from contamination.

**Fan-On-Demand™** cooling system operates only when needed, reducing noise, energy use and the amount of contaminants pulled through machine.

**Variable, electronic inductance control** helps to minimize spatter and optimize weld-bead wetting action.

**Lightweight, aerospace-grade aluminum case** offers protection with the benefit of reduced weight.

**Unique case design** protects internal components from dirt and dust. To connect power cord and/or set unit up for correct input power, remove the easy-to-handle panel (1/3 case). The remaining two-thirds of the case never needs to be removed!.

**Auto Remote Sense** enables unit to automatically use remote control if connected to remote control receptacle.

**Remote control circuit protection** prevents damage from high frequency and shorted control cables.



**600 A maximum output (450 A at 100% duty cycle)** meets the high output needs of demanding applications.

**115 VAC auxiliary power** provides 10 A of circuit-breaker-protected power for water circulators, etc.

**Primary voltage display** saves time and assures operator that power source is correctly set for available input voltage without having to remove side panels.

**Large, dual digital meters** display both volts and amps for quick and easy viewing by an operator. Voltmeter is presettable for ease of setting weld output. A hold function lets the operators view actual welding output when the arc is broken.

**85% power efficiency** means unit costs less to operate.

**Line voltage compensation** keeps power constant even if power input varies by  $\pm 10\%$ . Ensures consistent weld performance.

**Optional remote on/off** provides ability to turn the power source on and off when power source is located away from your work.

**Pulsed MIG capabilities with optional Optima control** reduces spatter and distortion, allows better out-of-position puddle control, and provides potential reduction of fume particle emission.



Power source is warranted for 3 years, parts and labor.  
Original main power rectified parts are warranted for 5 years.

MADE IN **USA**  
APPLETON, WI



**Miller Electric Mfg. Co.**  
An Illinois Tool Works Company  
1635 West Spencer Street  
Appleton, WI 54914 USA

**International Headquarters**  
Phone: 920-735-4505  
USA FAX: 920-735-4134  
Canadian FAX: 920-735-4169  
International FAX: 920-735-4125

**Web Site**  
[www.MillerWelds.com](http://www.MillerWelds.com)



# Specifications (Subject to change without notice.)



Input Power	Rated Output	Voltage Range in CV Mode	Amperage Range in CC Mode	Max. Open-Circuit Voltage	Amps Input at Rated Load Output, 60 Hz						Dimensions	Weight
Three-Phase	450 A at 38 VDC, 100% Duty Cycle 565 A at 43 VDC, 60% Duty Cycle	10–38 V	5–600 A	95 VDC	230 V	400 V	460 V	575 V	KVA	KW	H: 17 in (432 mm) W: 14-1/2 in (368 mm) D: 26 in (660 mm)	118 lb (53.5 kg)

Certified to both the Canadian and U.S. Standards for welding equipment.

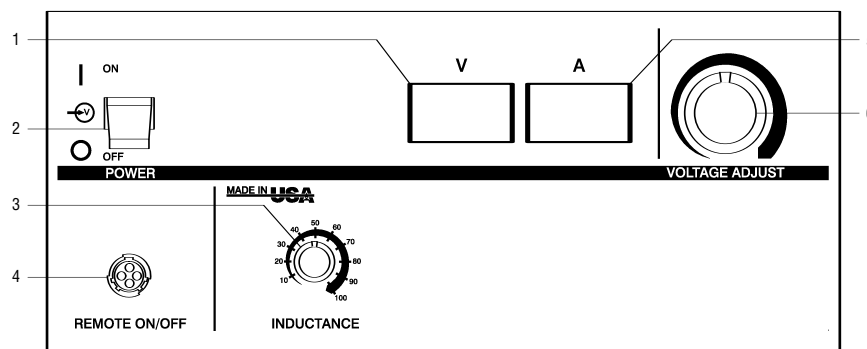
## Control Panel

### Additional Features

**Primary voltage display** shows what primary voltage the power source is linked for without removing the side panels. Saves time and assures you that the power source has been correctly linked for available input voltage.

**Unique case design** helps protect internal components from dirt and dust. To connect input power cord and/or set unit up for correct input power, remove the easy-to-handle panel (1/3 case). The remaining two-thirds of the case never needs to be removed!

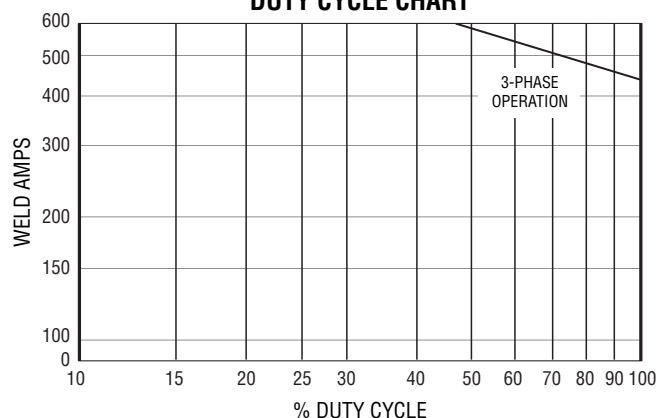
**Optional remote on/off** provides ability to turn power source on or off when it is located away from your work.



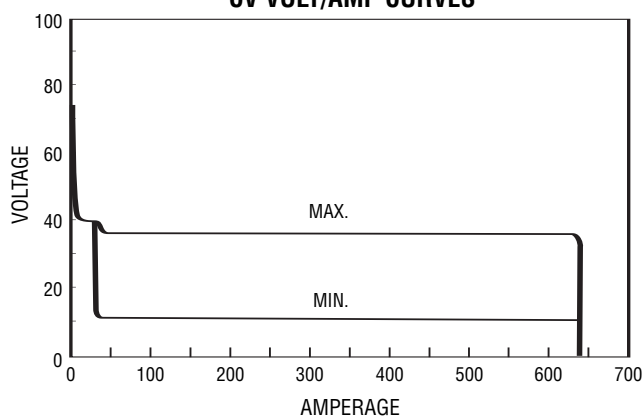
1. Voltmeter
2. Power On/Off Switch
3. Inductance Control
4. Remote On/Off Receptacle (Optional)
5. Ammeter
6. Voltage Adjustment Control

## Performance Data

DUTY CYCLE CHART



CV VOLT/AMP CURVES



## Genuine Miller Accessories



**Optima™ #043 389**  
A multipurpose, microprocessor-based pulse control for both synergic MIG (wire welding or GMAW) or manual MIG pulsing. Use this control with Invision 456 power sources and any Miller wire feeder, including automatic feeders and spool guns. Includes a 25 ft (7.6 m) cord with 14-pin plug.

### Extension Cords for Optima

**#043 725** 25 ft (7.6 m)  
**#043 726** 50 ft (15.2 m)  
**#043 727** 75 ft (22.9 m)



**WC-24 Weld Control #137 549**  
Designed for use with Miller CV power sources supplying 24 VAC and 14-pin receptacles. For use with Spoolmatic 30A spool gun.



**WC-115A Weld Control #137 546-01-1**  
Operates on 115 VAC and is designed for power sources without a 14-pin receptacle. For use with Spoolmatic 30A spool gun. Includes 10 ft (3 m) wall-type plug and power cord.

### Process Selector Control #042 872

Designed for use with dual wire feeders, applications where electrical isolation and/or polarity reversing of weld current is required, and for welding process changes. Includes 115 VAC/2 amp receptacle, two 14-pin receptacles and a 10 ft (3 m) 14-pin cord.



**RHC-14 Hand Control #129 340**  
Miniature hand control for remote current and contactor control. Dimensions: 4 x 4 x 3-1/4 in (102 x 102 x 82 mm). Includes 20 ft (6 m) cord and 14-pin plug.

### Extension Cords for Remote Controls and 24 VAC Wire Feeders

**#122 973** 25 ft (7.6 m)  
**#122 974** 50 ft (15.2 m)  
**#122 975** 75 ft (22.8 m)  
14-pin plug to 14-pin socket.

*Note: Not for use with Optima or 60M Series.*

## Inverter Racks

### Four or Six-Arc Welding System



The Inverter Rack conveniently houses multiple power sources for multiple welders. Both 4-pack and 6-pack models are available. Features include:

- Provision to parallel power sources or common work connections
- Two lifting eyes for transportation
- Rugged skids for dragging or pushing
- Customer can install up to a maximum of 4 Invision 456 power sources

For detailed information on customized Inverter Rack systems see Lit. Index No. DC/18.81.

## Running Gear



### MIGRunner™ XL Cart #195 246

Small footprint and easily maneuverable, with cylinder rack low enough that you do not have to lift bottles. Carries two 160 lb (72.6 kg) gas cylinders, or one gas cylinder and one coolant system.



### Cylinder Cart #042 537

Carries two 160 lb (72.6 kg) gas cylinders, or one gas cylinder and one coolant system. Feeder mounts to tray above power source.

## Wire Feeders/Guns



### SuitCase™ 8RC #194 938

### SuitCase™ 12RC #194 940

Lightweight, portable wire feeder for a variety of wires up to .062 in. Holds up to an 8 in (8RC) or 12 in (12RC) spool of wire. Operates using 14-pin control receptacle. See Lit. Index No. M/6.5.



### XR-Control #181 538

Push-pull wire feed system offers unparalleled performance for aluminum MIG welding. See Lit. Index No. M/1.7.



### S-74 DX #195 059

Wire feeder features process and weld control and handles a variety of wires up to 1/8 in. See Lit. Index No. M/3.0.



### 60M Series

### S-60M #131 794

### D-60M #131 796

Semiautomatic pulsed-MIG and standard CV-MIG feeder equipped

with eight synergic pulse programs. Handles .023 to 1/8 in wires and up to 60 lb spool. Optional data cards for program storage and transfer. Pulse arc characteristics are fully customizable. See Lit. Index No. M/2.4.



### Spoolmatic® 30A #130 831

A 1-lb, air-cooled spool gun that extends the weld process

range by adding a handy portable system for small wire MIG. Rated 200 A at 100% duty cycle. Includes 30 ft (9.1 m) cable assembly. (WC-24 #137 549 for 14 pin.)

## Genuine Miller Accessories (continued)

### Roughneck® C-Series MIG Guns

See Lit. Index No. AY/17.0.

### Ironmate™ Flux Cored Guns

See Lit. Index No. AY/16.0.

#### FC-1260

#195 732 10 ft (3 m)

#195 729 15 ft (4.6 m)

#### FC-1260LM

#194 912 10 ft (3 m)

#194 911 15 ft (4.6 m)

#### FC-1150

#194 864 10 ft (3 m)

#194 863 15 ft (4.6 m)

## Water Coolant Systems

For more information, see the Miller Coolant Systems literature sheet, Index No. AY/7.2.



### Coolmate™ 3

#043 007 115 VAC

#043 008 230 VAC

For use with water-cooled torches rated up to 600 amps. Unique paddle-wheel indicator, external filter and easy-fill spout.

### Coolmate™ V3 #043 009 115 VAC

For use with water-cooled torches rated up to 500 amps. Vertical design conveniently mounts to Miller cylinder rack in place of one cylinder.

### Coolmate™ 4 #042 288 115 VAC

For use with water-cooled torches rated up to 600 amps. Tough molded polyethylene case with carrying handle.

### Coolant #043 810

Sold in cases of four 1-gallon recyclable plastic bottles. Miller coolants contain a base of ethylene glycol and deionized water to protect against freezing to -37°F (-38°C) or boiling to 227°F (108°C). Also contains a compound that resists algae growth.

## Ordering Information

Power Source and Options	Stock No.	Description	Qty.	Price
Invision® 456P	#903 505	230/460 VAC, 60 Hz		
	#903 505-01-1	230/460 VAC, 60 Hz with Remote On/Off		
	#903 545	400 VAC, 50/60 Hz with CE		
	#903 546	575 VAC		
<b>Accessories</b>				
Optima™ MIG Pulse Control	#043 389	For CC/CV models only		
Optima™ Extension Cords		See page 3		
WC-24	#137 549	For use with Spoolmatic 30A and power sources <b>with</b> 14-pin		
WC-115A	#137 546-01-1	For use with Spoolmatic 30A and power sources <b>without</b> 14-pin		
Process Selector Control	#042 872			
Extension Cords (For 24 VAC wire feeders and remote controls)		See page 3. Not to be used with Optima or 60M		
<b>Running Gear</b>				
MIGRunner™ XL Cart	#195 246	For all models		
XMT Cylinder Cart	#042 537	For all models		
<b>Wire Feeders/Guns</b>				
SuitCase™ 8RC/12RC	#194 938/#194 940	See Lit. Index No. M/6.5		
XR-Control	#181 538	See Lit. Index No. M/1.7		
S-74 DX	#195 059	See Lit. Index No. M/3.0		
60M Series	#131 794/#131 796	S-60M/D-60M. See Lit. Index No. M/2.4		
Spoolmatic® 30A Spool Gun	#130 831	Includes 30 ft (9.1 m) cable assembly		
Roughneck® C-Series MIG Guns		See Lit. Index No. AY/17.0		
Ironmate™ Flux Cored Guns		See Lit. Index No. AY/16.0		
<b>Water Coolant Systems</b>		See above. See Lit. Index No. AY/7.2		

Date:

Total Quoted Price:

Distributed by:





# Invision™ 354MP/456MP

Issued Aug. 2007 • Index No. DC/23

**MIG Welding  
Power Source**



## Quick Specs

### Industrial Applications

Metal Fabrication  
Heavy Manufacturing  
Construction  
Light Manufacturing

### Processes

MIG (GMAW)  
Pulsed MIG (GMAW-P)  
Stick (SMAW)  
Flux Cored (FCAW)  
Air Carbon Arc (CAC-A)  
Cutting and Gouging

**Input Power** 354MP: 3-Phase or 1-Phase Power  
456MP: 3-Phase Power

**Rated Output** 354MP: 300 A at 32 V, 60% Duty Cycle (3-Phase)  
225 A at 29 V, 60% Duty Cycle (1-Phase)  
456MP: 450 A at 38 V, 100% Duty Cycle (3-Phase)

**Weight** 354MP: 79.5 lb (36.1 kg) 456MP: 118 lb (53.5 kg)

## The Power of Blue.®

**Invision 354MP MIGRunner™ industrial package** comes complete in one box. See page 7 for details.

### Wind Tunnel Technology™

protects electrical components and PC boards from contamination, significantly improving reliability.

### Fan-On-Demand™

operates only when needed reducing both noise and power consumption.

**Remote control of arc trim** allows wire feeder complete control of arc parameters.

**International-style weld disconnects** provide high-quality weld cable connections. (Two connectors supplied with each unit. Invision 354MP only.)

### Invision 354MP only

**Auto-Link®** circuit automatically links the power source to primary voltage being applied (208-230/460 VAC, single- or three-phase).

**Protective cover for front control panel** protects controls from damage in rough conditions.

**Optional 10 amp, 115 VAC auxiliary power** available.



Invision 354MP

Invision 456MP

**Dual digital meters** for quick and easy viewing and **large setup screen** to choose pulse welding mode.

**Built-in pulsed MIG capability** which eliminates pendants and cables that could potentially get damaged or lost.

**Pulsed spray transfer** helps reduce spatter and fume levels.

Lightweight, **aerospace-grade aluminum case** offers protection with the benefit of reduced weight.

**Microprocessor-based technology** allows process parameter storage to be retained between power down and power up and also between program changes.

**Inverter arc control technology** provides greater puddle control demanded especially by the pipe welding industry.

### Invision 456MP only

**Auto Remote Sense** enables unit to automatically use remote control if connected to remote control receptacle.

**Primary voltage display** shows what primary voltage the power source is set for without removing the side panels. Saves time and assures you that the power source has been correctly set for available input voltage.

**Standard 10 amp, 115 VAC auxiliary power** receptacle.



Welder is warranted for 3 years, parts and labor. Original main power rectified parts are warranted for 5 years.

MADE IN **USA**  
APPLETON, WI



**Miller Electric Mfg. Co.**  
An Illinois Tool Works Company  
1635 West Spencer Street  
Appleton, WI 54914 USA

**International Headquarters**  
Phone: 920-735-4505  
USA FAX: 920-735-4134  
Canadian FAX: 920-735-4169  
International FAX: 920-735-4125

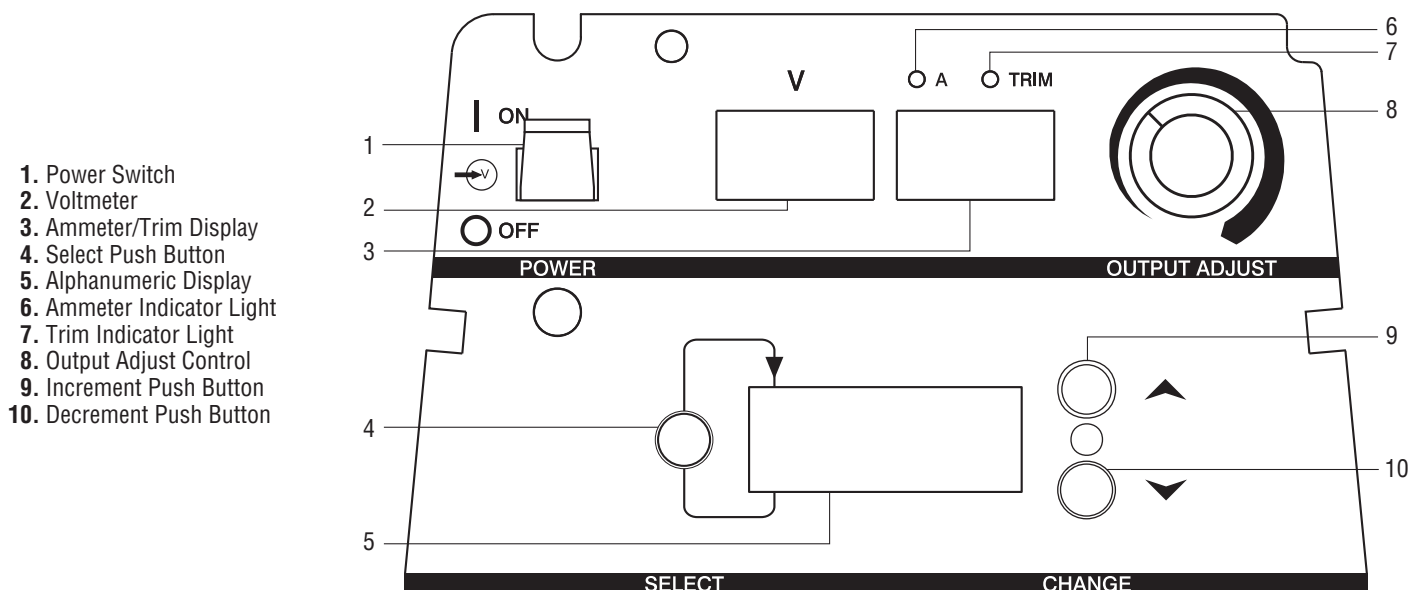
**Web Site**  
[www.MillerWelds.com](http://www.MillerWelds.com)



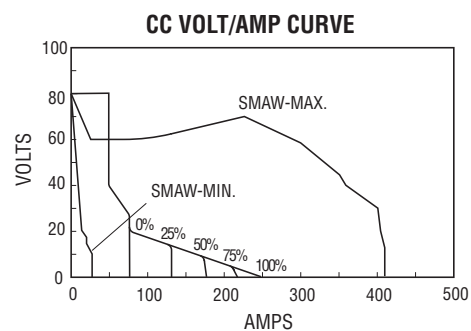
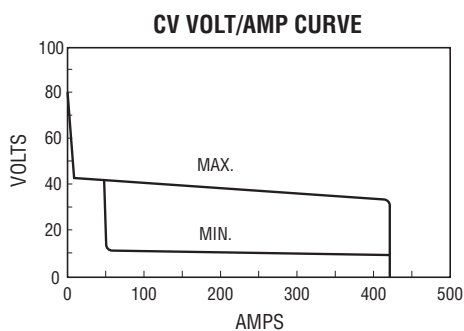
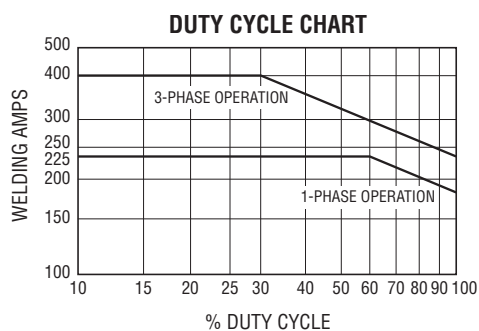


Rated Output	Rated Output at 60% Duty Cycle	Voltage Range in CV Mode	Amperage Range in CC Mode	Max. Open-Circuit Voltage	RMS Amps Input at Rated Load Output, 60 Hz 3-Phase at NEMA Load Voltages and Class I Rating						Dimensions	Weight
					230 V	400 V	460 V	575 V	KVA	KW		
Three-Phase	300 A at 32 VDC	10–35 V	5–400 A	90 VDC	30.5	17	18.9	15.2	12.2	11.6	H: 17 in (432 mm) W: 12-1/2 in (318 mm) D: 24 in (610 mm)	Net: 76 lb (34.5 kg) Ship: 85 lb (38.6 kg)
Single-Phase	225 A at 29 VDC (Non-pulse applications)				47.4	—	24.5	—	11.3	7.6		

## Control Panel

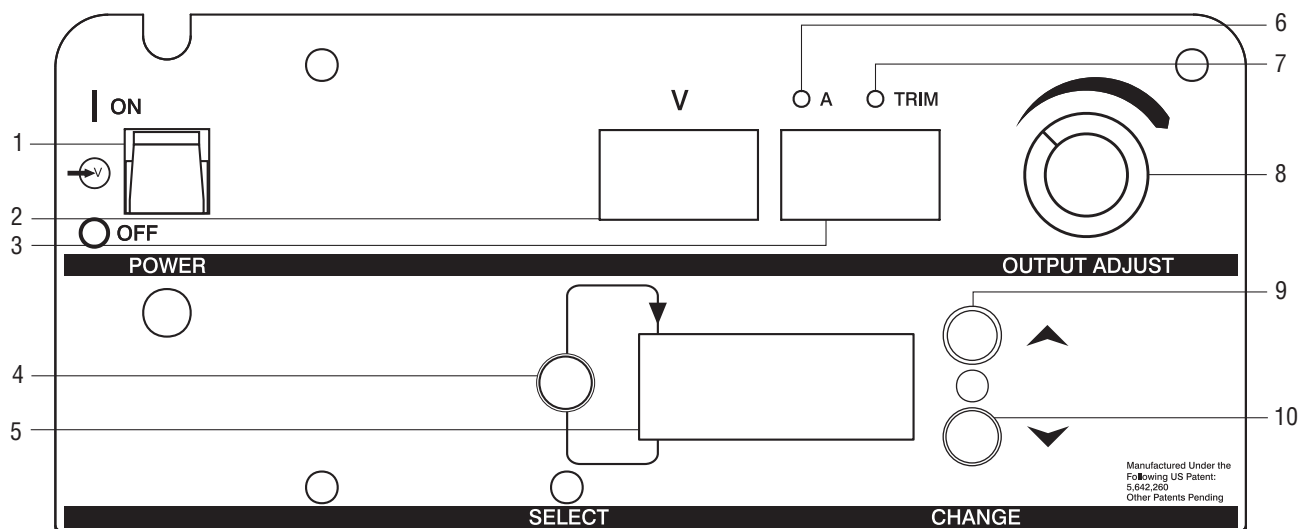


## Performance Data



Rated Output	Rated Output at 100% Duty Cycle	Voltage Range in CV Mode	Amperage Range in CC Mode	Max. Open-Circuit Voltage	RMS Amps Input at Rated Load Output, 60 Hz 3-Phase at NEMA Load Voltages and Class I Rating						Dimensions	Weight
Three-Phase	450 A at 38 VDC	10–38 V	5–600 A Stick	95 VDC	230 V	400 V	460 V	575 V	KVA	KW	H: 17 in (432 mm) W: 14-1/2 in (368 mm) D: 26 in (660 mm)	Net: 118 lb (53.5 kg) Ship: 129 lb (58.5 kg)
					50.8	31	27.8	24.4	21.2	19.2		

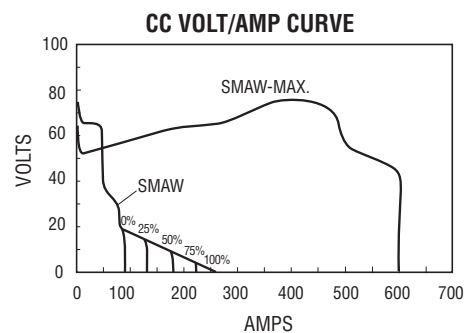
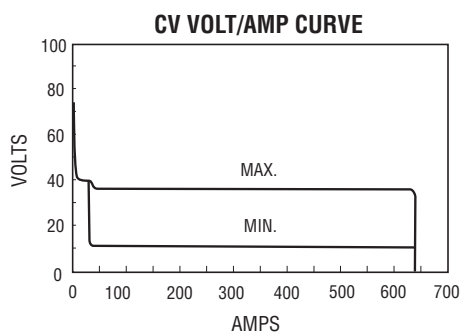
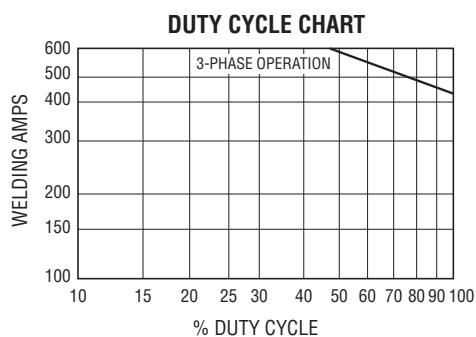
## Control Panel



1. Power Switch
2. Voltmeter
3. Ammeter/Trim Display
4. Select Push Button
5. Alphanumeric Display

6. Ammeter Indicator Light
7. Trim Indicator Light
8. Output Adjust Control
9. Increment Push Button
10. Decrement Push Button

## Performance Data



## Genuine Miller Accessories



### Protective Cover #195 478

Mildew and water resistant, odor-free cover protects your machine's finish. For 300/350 A inverters: XMT, Maxstar, Invision and Dynasty.



### MIGRunner™ Cart #195 445

For 354MP only. Small footprint and easily maneuverable, with cylinder rack low enough that you do not have to lift bottles. Durable, heavy-duty ergonomic handles are designed for comfort.



### MIGRunner™ XL Cart #195 246 (For all models)

Small footprint and easily maneuverable, with cylinder rack low enough that you do not have to lift bottles.



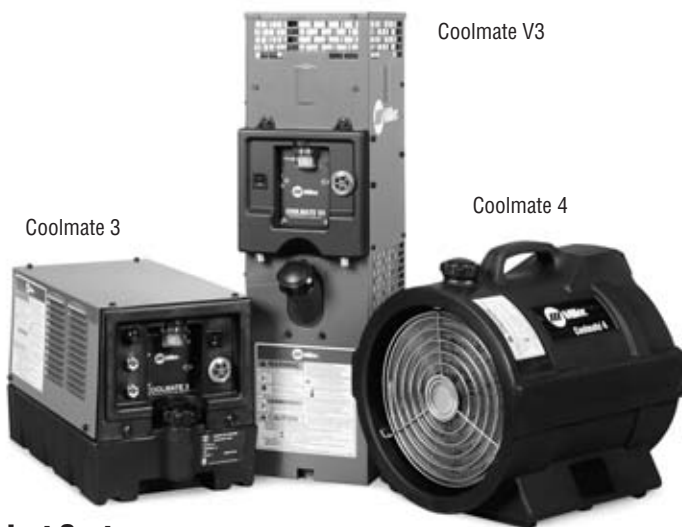
### Invision™ Cylinder Cart #042 537

Has adjustable handles and is slanted for convenient access to power source front panel controls. Carries two 160 lb (72.6 kg) gas cylinders, or one gas cylinder and one coolant system for TIG (GTAW) welding. Feeder mounted to tray above power source.



### Universal Carrying Cart and Cylinder Rack #042 934

Accommodates Invision™ 354MP only, plus gas cylinder up to 56 in (142.2 cm) high measuring 6 to 9 in (15.2 to 22.8 cm) in diameter. Also provides storage for auxiliary items such as electrodes, helmets, gloves, etc.



## Water Coolant Systems

For more information, see the Miller Coolant Systems literature sheet, Index No. AY/7.2.

### Coolmate™ 3

#043 007 115 VAC

#043 008 230 VAC

For use with water-cooled torches rated up to 600 amps. Unique paddle-wheel indicator, external filter and easy-fill spout.

### Coolmate™ V3

#043 009 115 VAC

For use with water-cooled torches rated up to 500 amps. Vertical design conveniently mounts to Miller cylinder rack in place of one cylinder.

### Coolmate™ 4

#042 288 115 VAC

For use with water-cooled torches rated up to 600 amps. Tough molded polyethylene case with carrying handle.

### Low Conductivity Coolant #043 810

Sold in cases of four 1-gallon recyclable plastic bottles. Miller coolants contain a base of ethylene glycol and deionized water to protect against freezing to -37°F (-38°C) or boiling to 227°F (108°C). Also contains a compound that resists algae growth.

## Wire Feeders



### **SuitCase™ 8RC #194 938**

### **SuitCase™ 12RC #194 940**

Lightweight, portable wire feeder for a variety of wires up to .062 in. Holds up to an 8 in (8RC) or 12 in (12RC) spool of wire. Operates using 14-pin control receptacle. See Lit. Index No. M/6.5.



### **70 Series**

### **S-74S #195 057**

### **S-74D #195 058**

Wire feeder features Posifeed™ wire drive assembly and

handles a variety of wires up to 1/8 in. See Lit. Index No. M/3.0.



### **S-74 DX #195 059**

Wire feeder features process and weld control and handles a variety of wires up to 1/8 in. See Lit. Index No. M/3.0.



### **22A Wire Feeder #193 006**

Simple, Reliable, 24 VAC constant-speed semiautomatic wire feeder, best suited for small diameter wires. Accommodates up to a 60 lb (27.2 kg) spool of welding wire when using optional wire reel assembly. See Lit. Index No. M/11.0.



### **XR Control #181 538**

Push-pull wire feed system offers unparalleled performance for aluminum MIG welding. See Lit. Index No. M/1.7.

### **Extension Cables for 14-Pin Plugs to 14-Pin Sockets**

**#122 973** 25 ft (7.6 m)

**#122 974** 50 ft (15.2 m)

**#122 975** 75 ft (22.8 m)

## International-Style Connectors (Will accept Dinse™ or other International connectors.)

*Note: The Invision 354MP power source is equipped with International-style connectors for secondary connections. (Power source is shipped with two 50-mm male International-style plugs for use with #4 to #1/0 AWG size cable.)*

### **International-Style Connector Kit**

#### **#042 418 50 mm**

Accepts #4 to #1/0 AWG cable size.

Required if male plugs shipped with power source must be replaced, if additional plugs are needed.

#### **#042 533 70 mm**

Accepts #1/0 or #2/0 AWG cable size.

Required if #1/0 or #2/0 AWG size cable is to be used.

Kit includes one International-style male plug which attaches to the work and/or weld cables and plugs into the International-style receptacles on the power source.

### **Extension Kit for International-Style Cable Connectors**

#### **#042 419 50 mm**

Accepts #4 to #1/0 AWG size cable.

#### **#042 534 70 mm**

Accepts #1/0 or #2/0 AWG size cable.

Used to adapt or extend weld and/or work cables. Kit includes one male International-style plug and one in-line female International-style receptacle.



### **International/Tweco® Adapter #042 465**

A one-piece adapter which has an International-style male plug (to power source) on one end and a female Tweco receptacle (for weld cable connection) on other end.



### **International/Cam-Lok Adapter #042 466**

A one-piece adapter which has an International-style male plug (to power source) on one end and a Cam-Lok receptacle (for weld cable connection) on other end.

## Typical Systems for Invision™ 354MP



### Aluminum System

Invision 354MP #903 593  
 XR-Control Wire Feeder #181 538  
 XR-A Edge 30 ft Gun #181 535  
 XR-W Edge 30 ft Gun #181 532

*Note: Guns are available in other lengths.*



### Steel and Stainless Steel System

Invision 354MP #903 593  
 SuitCase 12RC Feeder #194 940

## Typical Systems for Invision™ 456MP



### Aluminum System

Invision 456MP #903 725  
 XR-Control Wire Feeder #181 538  
 XR-W Edge 30 ft Gun #181 532

*Note: Guns are available in other lengths.*



### Steel and Stainless Steel System

Invision 456MP #903 725  
 S-74D Wire Feeder #195 058



## Package Components

### Invision™ 354MP MIGRunner™ #907 051

#### Comes Complete With:

- Invision 354MP
- S-74D wire feeder
- Roughneck™ C-4015 gun
- Consumables
- .035 and .045 in drive roll kit
- Regulator/flow gauge with gas hose
- 10 ft assembled work and positive weld cables
- 10 ft factory-installed power cord
- Factory-installed running gear and cylinder rack
- Bottom tray will hold optional Coolmate 3 (sold separately)

The Invision 354MP combines the advantages of an inverter-based power source with built-in pulse features for pulsed MIG welding. Perfectly matched with the full-featured S-74D wire feeder and durable Roughneck® gun, accessories and running gear, this package is an outstanding industrial-class welding system.



# Ordering Information

Equipment and Options	Stock No.	Description	Qty.	Price
<b>Power Source</b>				
Invision™ 354MP	#903 593 #903 593-01-1 #903 756 #907 057	208-230/460 VAC with Auto-Link® 208-230/460 VAC with Auto-Link® and Aux. Power 400 VAC with Aux. Power and CE 575 VAC		
Invision™ 354MP MIGRunner	#907 051	208-230/460 VAC with Auto-Link®. See page 7 for components		
Invision™ 456MP	#903 725 #903 598 #907 056	230/460 VAC 400 VAC 575 VAC		
<b>Accessories</b>				
MIGRunner™ Cart	#195 445			
MIGRunner™ Cart XL	#195 246			
Invision™ Cylinder Cart	#042 537			
Universal Cart and Cylinder Rack	#042 934	For use with Invision™ 354MP only		
Coolmate™ 3	#043 007 #043 008	115 VAC 230 VAC		
Coolmate™ V3	#043 009	115 VAC		
Coolmate™ 4	#042 288	115 VAC		
Coolant	#043 810			
<b>Wire Feeders</b>				
SuitCase™ 12RC	#194 940	See Lit. Index No. M/6.5		
70 Series	#195 057 #195 058 #195 059	S-74S. See Lit. Index No. M/3.0 S-74D. See Lit. Index No. M/3.0 S-74DX. See Lit. Index No. M/3.0		
22A	#193 066	See Lit. Index No. M/11.0		
XR™-Control	#181 538	See Lit. Index No. M/1.7		
XR-Edge™ Gun		See Lit. Index No. M/1.7		
XR-Pistol Gun		See Lit. Index No. M/1.7		
Extension Cords (For 24 VAC wire feeders and remote controls)	#122 973 #122 974 #122 975	25 ft (7.6 m) 50 ft (15.2 m) 75 ft (22.8m)		
<b>International-Style Connectors</b>				
International-Style Connector Kit	#042 418 #042 533	50 mm 70 mm		
Extension Kit for International-Style Cable Connectors	#042 419 #042 534	50 mm 70 mm		
International/Tweco® Adapter	#042 465	A one-piece adapter with International-style male plug		
International/Cam-Lok Adapter	#042 466	A one-piece adapter with International-style male plug		

Date:

Total Quoted Price:

Note: Invision 354MP will operate from 200/208 VAC, but will not compensate for low line fluctuations at this level.  
Meets NEMA rated output standards using 230/460 VAC primary only.



Distributed by:

# Invision™ 350 MPa System

Issued Nov. 2007 • Index No. DC/23.5

**MIG Welding  
Power Source**



## Quick Specs

### Heavy Industrial Applications

#### Invision 350 MPa

Railroad  
Truck/Trailer Manufacturing  
Light Gauge and Tube  
Lawn and Garden Equipment  
Recreational Vehicles

#### S-74 MPa

Heavy/Light Manufacturing  
Metal Fabrication

### Processes

#### Invision 350 MPa

MIG (GMAW)/Pulsed MIG (GMAW-P)  
Flux Cored (FCAW)  
Air Carbon Arc Cutting and Gouging  
(CAC-A) (1/4 in carbons max.)

#### S-74 MPa

MIG (GMAW)  
Flux Cored (FCAW)  
Pulsed MIG (GMAW-P)

### Invision 350 MPa

**Input Power** Requires 3- or 1-Phase Power, 50/60 Hz  
**Rated Output** 10–38 V, 5–425 A  
**Weight** Net: 80 lb (36.3 kg) Ship: 89.1 lb (40.4 kg)

### S-74 MPa

**Input Power** 24 VAC, 10 A, 50/60 Hz  
**Electrode Wire Dia. Capacity** .023–5/64 in (0.6–2 mm)  
**Wire Speed** 50–780 IPM (1.3–19.8 m/min)  
**Weight** Net: 58 lb (26 kg)

## The Power of Blue.®

**Dynamic Pulsed MIG** — highly-engineered pulse programs default to give a tight productive pulse arc. The operator can fine tune the arc if desired.

### Auto-Line™ Power Management

Technology allows for any input voltage hook-up (208–575 V) with no manual linking required, providing convenience in any job setting. Ideal solution for dirty or unreliable input power.

### Fan-On-Demand™ cooling system

operates only when needed, reducing noise, energy use and the amount of contaminants pulled through machine.

**Large, dual digital meters** are easy to view and are presettable to ease setting weld output.

**Inverter arc control technology** provides greater puddle control for outstanding MIG weld performance.

**Line voltage compensation** keeps welding output constant even if input power varies by +/-10%. XMT 350 models further expand line voltage compensation on 460 VAC to an amazing +37%, -59%.

**New!**



### Invision 350 MPa System

Add the new **S-74 MPa feeder** for a package that gives you the benefit of Synergic-Pulsed MIG. As you increase/decrease the wire feed speed, the pulse parameters increase/decrease matching the right amount of power output to the wire speed.

**SharpArc™ technology** changes welding arc characteristics in Pulsed MIG welding mode.

**Lightweight, aerospace-grade aluminum case** offers protection with the benefit of reduced weight.

**Easy setup** for MIG and Pulsed MIG applications.

**TRUE BLUE**  
3YR. WARRANTY

Power source is warranted for 3 years, parts and labor.  
Original main power rectified parts are warranted for 5 years.  
Gun warranted for 90 days, parts and labor.

MADE IN **USA**  
APPLETON, WI



**Miller Electric Mfg. Co.**  
An Illinois Tool Works Company  
1635 West Spencer Street  
Appleton, WI 54914 USA

**International Headquarters**  
Phone: 920-735-4505  
USA FAX: 920-735-4134  
Canadian FAX: 920-735-4169  
International FAX: 920-735-4125

**Web Site**  
[www.MillerWelds.com](http://www.MillerWelds.com)



# Specifications (Subject to change without notice.)



Input Power	Rated Output at 60% Duty Cycle	Voltage Range in CV Mode	Amperage Range in CC Mode	Max. Open-Circuit Voltage	Amps Input at Rated Load Output, 60 Hz, 208 V 230 V 400 V 460 V 575 V KVA KW								Dimensions	Weight
Three-Phase	350 A at 34 VDC	10–38 V	5–425 A	75 VDC	40.4	36.1	20.6	17.8	14.1	14.2	13.6		H: 17 in (432 mm) W: 12-1/2 in (318 mm) D: 24 in (610 mm)	80 lb (36.3 kg)
Single-Phase	300 A at 32 VDC	10–38 V	5–425 A	75 VDC	60.8	54.6	29.7	24.5	19.9	11.7	11.2			

Certified to both the Canadian and U.S. Standards for welding equipment.

## Additional Features

**Exceptional electrical efficiency. At 400 A, efficiency is 87.24%!**

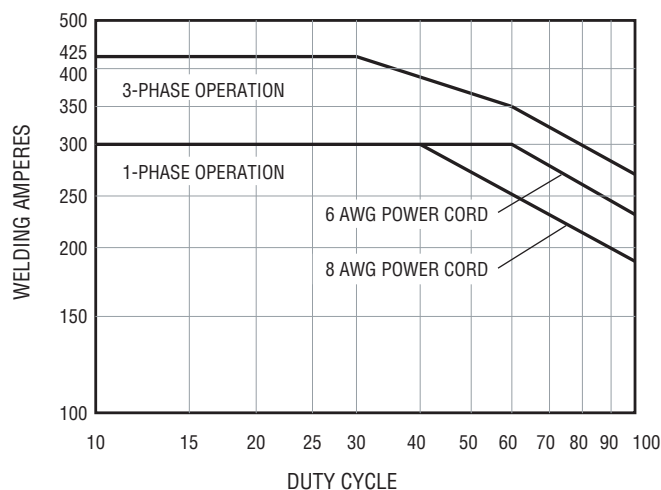
**350 A of welding output at 60% duty cycle with superior low-end performance.**

**Power factor of .95** enables smaller fuses/breakers and primary wiring. Primary amperage draw at rated output is 25% less than the competition.

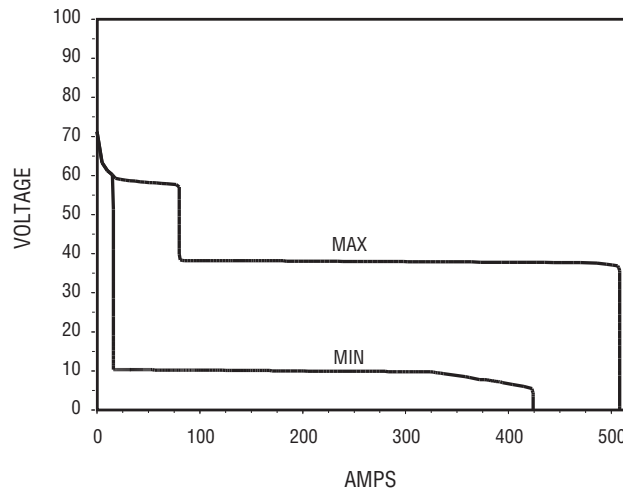
**Ultra-tough, polycarbonate-blended cover for control panel** protects front controls from damage.

## Performance Data

DUTY CYCLE CHART



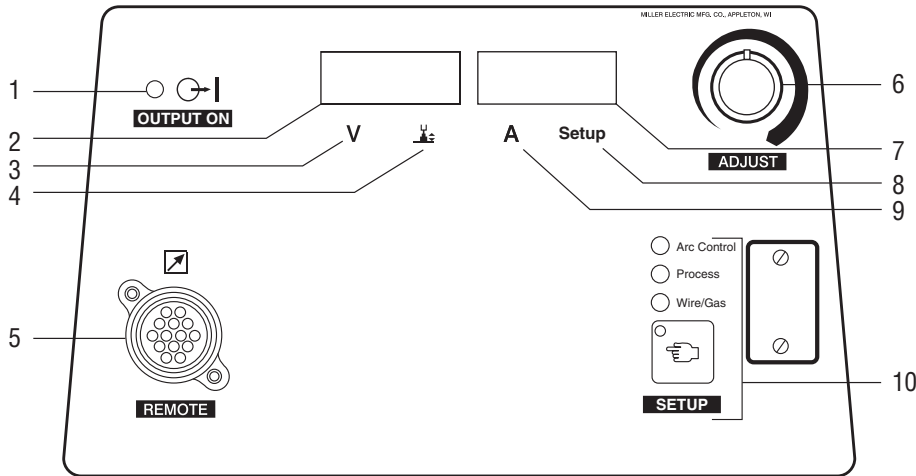
CV VOLT/AMP CURVE



## Control Panel



The Invision™ 350 MPa and S-74 MPa combine for a synergic system that simplifies and improves MIG and Pulsed MIG welding applications for industrial manufacturing.



1. Output ON Indicator Light
2. Left Display
3. Voltage Indicator
4. Arc Length Indicator
5. Wire Feeder Receptacle
6. Adjustment Control
7. Right Display

8. Setup Indicator
9. Amperage Indicator
10. Setup Indicator Lights
  - Arc Control Indicator
  - Process Indicator
  - Wire/Gas Type Indicator
  - Setup Button

## Built-In Pulsed MIG Programs

The Invision 350 MPa has built-in dynamic Pulsed MIG capabilities. See the table below for the wide range of Pulsed MIG (GMAW-P) welding applications the Invision 350 MPa can handle.

Wire Types		Gas Types
Steel	.035 STL	ARGN CO <sub>2</sub> (Argon/Carbon Dioxide) ARGN OXY (Argon/Oxygen)
	.045 STL	
Metal Core	.035 MCOR	ARGN CO <sub>2</sub> (Argon/Carbon Dioxide)
	.045 MCOR	
	.052 MCOR	
Stainless Steel	.035 SSTL	TRI MIX (Tri-gas mixture) ARGN OXY (Argon/Oxygen) ARGN CO <sub>2</sub> (Argon/Carbon Dioxide)
	.045 SSTL	
Aluminum	.035 AL4X (4000 Series)	ARGN (Argon)
	3/64 AL4X (4000 Series)	
	.035 AL4X (5000 Series)	
	3/64 AL4X (5000 Series)	
Nickel	.035 NI	ARGN HE (Argon/Helium)
	.045 NI	
Silicon Bronze	.035 SIBR	ARGN (Argon)
Copper Nickel	.045 CUNI	HE ARGN (Helium/Argon)

## MPa

**MPa: M (MIG), P (Pulse), a (Advanced Arc Control).** Advanced arc control enables an improved pulse welding arc. The operator has more control over puddle and bead characteristics using SharpArc™. In addition, the unit provides a more robust and stable arc at very low arc length, reducing heat input, and providing the ability to weld on a wider range of material thickness.

Synergic pulsing is available only with the S-74 MPa dedicated wire feeder.

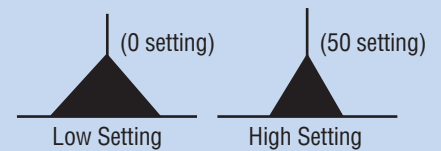
What are some benefits of Synergic-Pulsed MIG?

1. Easier to set up
2. No more changing wire speed, and then having to go back to reset the welding output.

## Additional Features

### SharpArc™

Changes welding arc characteristics in Pulsed MIG (GMAW-P) welding mode.



*Note: Setting has a subtle effect on arc that is exaggerated in graphic for visual emphasis.*

If a gas is used other than what is listed on the Pulsed MIG welding program chart (below left), the SharpArc™ can be adjusted to help customize your arc to the gas being used.

Lower SharpArc™ settings widen the arc cone, increase puddle fluidity and flattens the weld bead.

### Auto Remote Sense™

Enables unit to automatically use remote control if connected to remote control receptacle.

### Dinse International-style weld disconnects

Provide high-quality weld cable connections. Dinse and Tweco connectors are available. When Dinse connectors are specified, two connectors are supplied with the unit.

### Optional 115 VAC auxiliary power

Provides 10 amps of circuit-breaker-protected power for water circulators, etc.



# S-74 MPa Single Feeder Features



## Posifeed™ Wire Drive Assembly Features

(Synergic Pulsed MIG when connected to the Invision 350 MPa)

- 24 VDC high-torque, permanent-magnet motor.
- Quick-change drive rolls.
- Quick-release, calibrated drive-roll pressure adjustment arm allows drive roll change without losing spring preload setting.
- **Four sealed ball bearing all-gear-driven drive-roll carriers** for smooth, positive and accurate wire feed with long uninterrupted service life.
- Easy loading and threading of welding wire without having to release the drive-roll pressure arm.
- **Solid-state speed control and brake circuit** eliminates the need for electrical/mechanical relays and increases service life.
- Uses Miller standard 1-5/8 in (41 mm) diameter drive rolls.
- Quick-connect for all Miller guns.
- Covered drive rolls—easy access, heavy-duty, molded composite cover over drive assembly.
- Floating positive drive systems provide trouble-free feeding on a variety of wires.



**Tool-less rotatable drive** assembly allows operator to rotate the drive housing, eliminating severe bends in the wire feed path which reduce gun liner life. Also aids in feeding difficult wires.



**Dual tension control** adds flexibility for the operator to fine-tune the pressure on the wire independently when feeding a variety of wires.

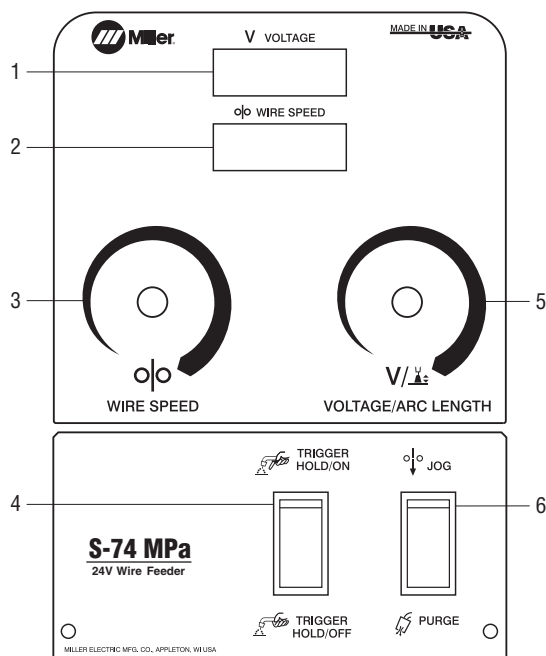
## Specifications (Subject to change without notice.)



(Use with CV Power Sources.)

Input Power	Electrode Wire Diameter Capacity	Wire Speed	Dimensions	Net Weight
24 VAC, 10 A, 50/60 Hz	.023–5/64 in (0.6–2 mm)	50–780 IPM (1.3–19.8 m/min) Optional High Speed Motor: 90–1440 IPM (2.3–36.6 m/min)	H: 14 in (356 mm) W: 12 in (305 mm) D: 26-1/2 in (673 mm)	58 lb (26 kg)

## Control Panel



1. Voltage Display Meter
2. Wire Speed Display Meter
3. Wire Feed Speed Select
4. Trigger Hold
5. Voltage Select
6. Jog/Purge

## Invision™ 350 MPa System Components

### Invision™ 350 MPa MIGRunner™ #907 398

#### Comes Complete With:

- Invision 350 MPa power source
- S-74 MPa wire feeder
- Bernard® Q™-Gun
- Consumables
- .035/.045 in drive roll kit
- **NEW!** Industrial MIG 4/0 Kit with Dinse Connector
- MIGRunner Cart with cylinder rack
- Bottom tray will hold optional Coolmate 3 (sold separately)



### Invision™ 350 MPa Stationary Package #951 113

#### Comes Complete With:

- Invision 350 MPa power source
- S-74 MPa wire feeder
- Bernard® Q™-Gun
- Consumables
- .035/.045 in drive roll kit
- **NEW!** Industrial MIG 4/0 Kit with Dinse Connector



## For Your Aluminum Welding Applications

### Invision™ 350 MPa Push-Pull Aluminum Package #951 115

#### Comes Complete With:

- Invision 350 MPa power source
- XR™-Control Box
- 25 ft (7.6 m) air-cooled XR-Aluma-Pro™ Gun



## Genuine Miller Accessories



### Industrial MIG 4/0 Kit with Dinse Connector #300 405

This useful pulse-ready MIG kit can be purchased separately. Includes Smith® flowmeter/regulator with 10 ft (3 m) gas hose, 10 ft (3 m) 4/0 feeder weld cable with Dinse connector on one end and a lug on the other, 15 ft (4.6 m) work cable with Dinse connector on one end and 600-amp C-clamp on the other.

### Process Selector Control #042 872

Designed for use with dual wire feeders, applications where electrical isolation and/or polarity reversing of weld current is required, and for welding process changes. Includes 115 VAC/2 amp receptacle, two 14-pin receptacles and a 10 ft (3 m) 14-pin cord.

## Running Gear



### MIGRunner™ Cart #195 445

Small footprint and easily maneuverable, with cylinder rack low enough that you do not have to lift bottles.



### XMT Cylinder Cart #042 537

Carries two 160 lb (72.6 kg) gas cylinders, or one gas cylinder and one coolant system for TIG (GTAW) welding. Feeder mounts to tray above power source.



### Universal Carrying Cart and Cylinder Rack #042 934

Holds power source, and gas cylinder up to 56 in (142.2 cm) high measuring 6 to 9 in (15.2 to 22.8 cm) in diameter.

## Protective Cover



### #195 478

Mildew and water resistant, odor-free cover protects your machine's finish. For 300/350 A inverters: Invision, XMT, Maxstar and Dynasty.

## Wire Feeders/Guns



### 70 Series

**S-74 MPa #300 411\***

**S-74S #195 057**

**S-74D #195 058**

**S-74DX #195 059**

Wire feeder features Posifeed™ wire drive assembly and handles a variety of wires up to 1/8 in. Comes with FREE Bernard® Q™-Gun. See Lit. Index No. M/3.0.

*\*Designed exclusively for Invision 350 MPa for Synergic Pulsed MIG benefits.*



### XR™-Control #181 538

Push-pull wire feed system offers unparalleled performance for aluminum MIG welding. See Lit. Index No. M/1.7.



### XR™-Aluma-Pro™ Gun\*

**#300 000 15 ft (4.6 m) air-cooled**

**#300 001 25 ft (7.6 m) air-cooled**

**#300 264 35 ft (10.6 m) air-cooled**

**#300 003 15 ft (4.6 m) water-cooled**

**#300 004 25 ft (7.6 m) water-cooled**

**#300 265 35 ft (10.6 m) water-cooled**

This easy-to-use and easy-to-maintain gooseneck-style MIG gun is designed for push-pull wire feed systems (with required XR-Control). Available in air- or water-cooled versions. Trigger hold reduces operator fatigue (feature available when paired with XR-Control). Gun design allows for better access into tight spots. See Lit. Index No. M/1.7.

*\*XR-Control is required to operate this gun with the Invision 350 MPa System.*



### 22A #193 066

Simple, reliable, 24 VAC constant-speed semiautomatic wire feeder, best suited for small diameter wires. Accommodates up to 60 lb (27.2 kg) spool of welding wire when using optional wire reel assembly. Comes with FREE Bernard® Q™-Gun! See Lit. Index No. M/11.0.



### 24A #195 112

Simple, reliable, 24 VAC constant-speed semiautomatic wire feeder, best suited for small diameter wires. Remote voltage is standard. Features four gear-driven drive rolls for larger wire sizes. Accommodates up to 60 lb (27.2 kg) spool of welding wire when using optional wire reel assembly. Comes with FREE Bernard® Q™-Gun! See Lit. Index No. M/11.0.



### Spoolmatic® 30A #130 831

A 1-lb, air-cooled spool gun that extends the weld process range by adding a handy portable system for small wire MIG. Rated 200 A at 100% duty cycle. Includes 30 ft (9.1 m) cable assembly. (WC-24 #137 549 for 14 pin.)



### WC-24 Weld Control #137 549

Designed for use with Miller CV power sources supplying 24 VAC and 14-pin receptacles. For use with Spoolmatic 30A spool gun.

## Water Coolant Systems

For more information, see the Miller Coolant Systems literature sheet, Index No. AY/7.2.



### Coolmate™ 3

#043 007 115 VAC

#043 008 230 VAC

For use with water-cooled torches rated up to 600 amps. Unique paddle-wheel indicator, external filter and easy-fill spout.

### Coolmate™ V3 #043 009 115 VAC

For use with water-cooled torches rated up to 500 amps. Vertical design conveniently mounts to Miller cylinder rack in place of one cylinder.

### Coolmate™ 4 #042 288 115 VAC

For use with water-cooled torches rated up to 600 amps. Tough molded polyethylene case with carrying handle.

### Coolant #043 810

Sold in cases of four 1-gallon recyclable plastic bottles. Miller coolants contain a base of ethylene glycol and deionized water to protect against freezing to -37°F (-38°C) or boiling to 227°F (108°C). Also contains a compound that resists algae growth.

## International-Style Connectors

*Note: XMT 350 power sources are equipped with International-style connectors for secondary connections. (Power source is shipped with two 50-mm male International-style plugs for use with #1 or #2 AWG size cable.)*



### International/Tweco®

Adapter #042 465

International/Cam-Lok

Adapter #042 466

One-piece adapter with International-style male plug (to power source) on one end and female receptacle (Tweco or Cam-Lok for weld cable connection) on other end.

### International-Style Connector Kit

#042 418 50 mm

Accepts #4 or #1/0 AWG cable size. Required if male plugs shipped with power source must be replaced, or if additional plugs are needed.

#042 533 70 mm

Accepts #1/0 or #2/0 AWG cable size. Required if #1/0 or #2/0 AWG size cable is to be used.

Kit includes one International-style male plug which attaches to the work and/or weld cables and plugs into the International-style receptacles on the power source.

### Extension Kit for International-Style Cable Connectors

#042 419 50 mm

Accepts #4 or #1/0 AWG size cable.

#042 534 70 mm

Accepts #1/0 or #2/0 AWG size cable.

Used to adapt or extend weld and/or work cables. Kit includes one male International-style plug and one in-line female International-style receptacle.



# Ordering Information

Power Source and Options	Stock No.	Description	Qty.	Price
Invision™ 350 MPa	#907 397 #907 397-01-1	208–575 VAC with Auto-Line™ 208–575 VAC with Auto-Line™ and Auxiliary Power		
Invision™ 350 MPa System		See page 5 for different packages and components		
<b>Accessories</b>				
Industrial MIG 4/0 Kit with Dinse Connector	#300 405	See page 6		
WC-24	#137 549	For use with Spoolmatic® 30A and power sources <b>with</b> 14-pin		
Process Selector Control	#042 872			
Extension Cords (For 24 VAC wire feeders and remote controls)	#043 690 #043 691	25 ft (7.6 m) 50 ft (15 m)		
<b>Running Gear</b>				
MIGRunner™ Cart	#195 445			
XMT Cylinder Cart	#042 537			
Universal Carrying Cart and Cylinder Rack	#042 934			
<b>Protective Cover</b>	#195 478			
<b>Wire Feeders/Guns</b>				
70 Series	#300 411 #195 057 #195 058 #195 059	S-74 MPa. Designed <b>exclusively</b> for Invision 350 MPa for Synergic Pulsed MIG benefits S-74S. See Lit. Index No. M/3.0 S-74D. See Lit. Index No. M/3.0 S-74DX. See Lit. Index No. M/3.0		
XR™-Control	#181 538	See Lit. Index No. M/1.7		
22A	#193 066	See Lit. Index No. M/11.0		
24A	#195 112	See Lit. Index No. M/11.0		
Spoolmatic® 30A Spool Gun	#130 831	Includes 30 ft (9.1 m) cable assembly		
XR-Aluma-Pro™ Gun	#300 000 #300 001 #300 264 #300 003 #300 004 #300 265	15 ft (4.6 m) air-cooled 25 ft (7.6 m) air-cooled 35 ft (10.6 m) air-cooled 15 ft (4.6 m) water-cooled 25 ft (7.6 m) water-cooled 35 ft (10.6 m) water-cooled		
<b>Water Coolant Systems</b>		See page 7. See Lit. Index No. AY/7.2		
<b>International-Style Connectors</b>		See page 7		

Date:

Total Quoted Price:



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